Riverside Educational Monographs
EDITED BY HENRY SUZZALLO
PROFESSOR OF THE PHILOSOPHY OF EDUCATION
TEACHERS COLLEGE, COLUMBIA UNIVERSITY

THE TEACHER'S HEALTH

A Study in the Hygiene of an Occupation

BY

LEWIS M. TERMAN
ASSOCIATE PROFESSOR OF EDUCATION
LELAND STANFORD, JR., UNIVERSITY

HOUGHTON MIFFLIN COMPANY
BOSTON, NEW YORK AND CHICAGO
The Riverside Press Cambridge

To

THE PUBLIC SCHOOL TEACHERS
OF THE UNITED STATES

CONTENTS

PREFACE

THE importance of the subject to which the reader is introduced in this little volume is attested by the following bit of testimony from one of our most experienced school physicians: "In my experience as Medical Director of Schools," the statement runs, "I have time and again observed teachers afflicted with tuberculosis, asthma, deafness, defective vision, neurasthenia, malnutrition, anæmia, heart disease, or other disorders."[1] Similar warnings have been sounded in the last two decades from almost every part of the civilized world. Medical inspection of schools, which everywhere was instituted solely for the benefit of the pupil, is rapidly growing to include in its scope the medical examination and supervision of teachers as well. The latter was the inevitable corollary of the former, for the health of the school-child is intricately related to that of the teacher.

[1] E. B. Hoag: *The Health Index of Children*, 1910, p 151.

PREFACE

The purpose of this book is to summarize and interpret the most important investigations which bear upon the hygiene of the teaching profession. It is hoped that the findings of the brief survey will (1) make some contribution toward the conservation of the teacher's health by pointing out some of the sources of danger and by suggestions for a better personal hygiene; (2) that it will awaken those charged with the administration of our schools to the need for further investigations and to the desirability of adopting some concerted plan of action designed to ameliorate the present rather unsatisfactory hygienic status of the profession.

STANFORD UNIVERSITY,
April 10, 1912.

EDITOR'S INTRODUCTION

THERE are many factors in school efficiency about which we know little; the health of the teacher is one. For a long time many citizens have looked upon the teacher's work as a sinecure; for an equally long time the teachers have contended that it is a life of strain and exhaustion. The value of direct experience as testimony should certainly carry some weight; but even more valuable is a presentation of the available scientific evidence, which Professor Terman presents in this monograph, along with his critical interpretations. But one conclusion from this study seems possible and that is, that neither the profession nor the public has been sufficiently aware of the morbidity existing among teachers as a class. In consequence they both have been inadequately vigorous in guaranteeing that health of mind and body which is essential to high effectiveness in teaching.

Vigorous practical measures ought to be the

product of definite knowledge, and such knowledge as we have suggests that we should pursue six distinct policies: —

(1) The establishment of an efficient health examination of candidates for entrance into professional training or practice.

(2) The provision of an adequate training in hygiene and sanitation for all teachers.

(3) The adoption of measures that will guarantee a distribution of teachers among lines of work that are most congenial to personal temperament, training, and taste, and therefore less injurious to physical and mental health.

(4) The improvement of the physical conditions of classroom life so as to approximate the best standards of hygiene and sanitation.

(5) The betterment of the methods of school supervision and administration so that the demands of a constantly evolving school system shall be transmitted to the teacher with due regard to the personal equation in effective workmanship.

(6) The fostering of an intelligent appreciation on the part of the public that teachers, just

because they are in a business that is exhausting, are entitled to a normal, restful, and recreative personal and social life.

It is unnecessary to argue the importance of all these purposes; for the most part they express obvious needs. It would not be necessary to mention them were it not for our persistent violation of the standards they imply. Teachers with communicable diseases still expose children to the danger of infection, and persons, too weak for manual labor or commercial occupations, turn to teaching under the delusion that they are equal to its demands upon their physical resources. Training schools for teachers are still so scornfully superior in their intellectual and spiritual pretensions that they fail to give their student-teachers a real and practicable command of the fundamental principles of hygiene and sanitation. Again, the sanitary arrangements of many schoolrooms, as regards heating, lighting, and ventilation, are far from satisfactory; this, too, in spite of much recent progress in our knowledge of what ought to be.

It is useful, therefore, to urge the value for

teachers of sound physical health and wholesome mental attitudes. Modern teaching is not a formal and mechanical procedure, exclusively conducted through memory and habit, the twin economizers of human energy. It is a highly versatile occupation calling for alertness, tact, patience, persistence, judgment, and the other resources utilized in meeting novel situations. The constant solving of novel situations is precisely the kind of activity which leads to much wear and tear. Physical weaklings and tired people are poorly fitted to represent civilization on the frontier of childhood where conflicts with law, order, and intelligence, or emergencies involving the physical safety and the mental potentialities of children, are continually arising. The positive value of rugged health, with adequate reserve energy, is not to be underestimated in a scheme of work calling for the degree of self-restraint and continual personal readjustment required in being a foster parent and intellectual leader to the children of forty or more different families.

It is most important in this connection to em-

phasize the mental health of the teacher, that wholesome functioning of a truly social personality in the presence of impressionable youth. The chief conscious purpose of school life may be the transmission of knowledge, but it is more than likely that the outcome of greatest value is found in the wisdom garnered in the classroom as a by-product. And wisdom, as we have often been told, is more than truth; it is truth evaluated for the practical purposes of life with all its varying circumstances. It is just here that the wholesomeness or the unwholesomeness of the teacher's personality enters into the efficiency of the school. If the teacher's conscious pedagogical method transmits truth, it is the unconscious influence of his personality that gives it that bias of meaning which the fact will forever after have for the pupil. The teacher whose habitual mental reactions are filled with the common sense of a world-old wisdom, true to the better order of things outside the school, is the teacher with mental health. No other teacher will do. The merely school-made or book-made instructor will be an academician, a bookworm,

a martinet, or a pedant, but not a teacher. The real teacher is made only by a wholesome participation in life, wherein books and schools are the accessories of a dominant interest in human life itself.

THE TEACHER'S HEALTH

THE TEACHER'S HEALTH

I

THE PROBLEM

In order to maintain a reasonable standard of health among the eighty thousand soldiers and sailors in its employ, our National Government expends annually large sums of money in payment for expert medical and surgical attendance and in the prosecution of scientific researches bearing on military hygiene. Whether the contribution of armies and navies to the welfare of the world is sufficient to justify their support is, however, a question about which exists much difference of opinion.

In the United States there are about one-half million public-school teachers whose combined efforts are molding the intellect and character of nearly twenty million children. These teachers are official bearers of the torch of civilization to the generations which are to follow. No one

doubts the value of their social contribution, or that the school is the most far-reaching and fundamental of our public institutions. Concerning the health conditions obtaining among these half-million teachers we know, however, extremely little beyond what common observation teaches us. So far as can be learned, not a dollar of public money has ever been expended in the United States even to investigate the hygiene of school-teaching, to say nothing of expenditures for remedial measures.

Regarding the mortality rate of teachers, in comparison with that of other professional workers, our knowledge is far from satisfactory; still less do we know about the relative responsibility of the various diseases. We do not know how many of our teachers are partially incapacitated by affections of the heart, lungs, throat, digestive organs, or the nervous system. We have not ascertained the safe limits as to size of classes, number of hours of teaching duties per week, years of service, etc., nor have we much definite information relating in any way to this public-service profession.

The soldier is not accepted until he has been given a thorough physical examination and has been put through a searching inquiry as to his antecedents; but the mentors of our children, as far as their health is concerned, are accepted upon the sublimest faith. We do not inquire how many of them are diseased on entering the profession, how many have been subjected to overstrain in their professional preparation, nor how long the average teacher serves before health begins to deteriorate. On the other hand, the army statistician could doubtless inform us fairly accurately upon all matters of corresponding import for military affairs, including even the hygiene and service life of the army mule.

The little positive knowledge we have regarding the hygiene of teaching is not especially reassuring. As will be shown later in detail, investigations indicate that the teacher becomes superannuated at a decidedly earlier age than the lawyer, physician, state official, or man of business. Evidence will also be adduced which seems to warrant the belief that between a quarter and a half-million of our school-children are being

daily instructed by teachers who are already caught in the grip of the great White Plague. It hardly needs to be affirmed that to permit the presence of a tuberculous teacher in the schoolroom is a species of neglect which constitutes a terrible menace. It will also be shown that teachers are especially subject to pathological mental fatigue and that probably more than a million of our school-children are taught by persons who are neurasthenic or otherwise nervously unstrung.

Such figures must of course be understood as little more than guesses, based, as they are, upon fragmentary or otherwise unsatisfactory data. Whatever the facts, however, they should be thoroughly explored. There is no other occupation or profession, the hygiene of which is so vitally important to the public welfare. Teaching at present is the chief profession open to women. Our women teachers equal in number the combined Federal armies of the Civil War. Apart from humanitarian considerations, they are a national asset far too valuable to justify our apathetic disregard of the hygienic conditions which

surround them. For the sake of the children, as well, it is a matter of the greatest consequence that teachers be kept at the highest possible level of physical, mental, and moral efficiency. The teacher who harbors tuberculosis and the teacher who dwells always in the abysses of despair and gloom or tingles with nervous hypersensitiveness are dangerous in almost equal degree.

In proportion as society recognizes its obligations to the teaching profession by the excellent practice of granting retiring allowances and sick-benefits the investigation of mortality and morbidity among teachers will become a recognized necessity. For this purpose we shall have to go far beyond the data usually collected for census purposes. Such investigation must seek to establish a reliable body of facts on at least the following points: —

(1) *The physical equipment of those entering the profession.* Is it true, as some authorities maintain, that adverse selection is at work favoring the entrance into the profession of persons who are not sufficiently rugged to measure up to

the demands of other, supposedly more arduous, pursuits? Is it true, as others believe, that candidates for teaching are injured by overwork and bad hygiene during the period of their professional training?

(2) *The hygienic aspects of the teacher's work itself, and of the conditions under which the work is done.* This will include such topics as the size of class, the apportionment of work over the school-year and school-day, the length of vacations; the influence on health of salary, tenure, and different methods of supervision; special disease tendencies, together with the underlying reasons therefor; and, finally, the mental and moral hygiene of the teacher's work.

In the light of such investigations teachers will need to be instructed not only in the general laws of hygiene, but especially in those aspects of personal hygiene which pertain to their particular habits of living and working. The desirability of interesting teachers themselves in the sources of their ill health and in the means of its prevention cannot be too strongly emphasized, and in fact is the main justification for the present volume.

THE PROBLEM

Special attention is called to the fact that most of the evils herein recounted are remediable. Had such not been the case the writer would not have risked the danger of disheartening the teacher by directing her attention to them. It is conceivable that further inquiry into the hygiene of teaching will appreciably affect our methods of instruction, our prevailing types of school architecture, and even assist in the accomplishment of special educational legislation designed to conserve the health of our largest and most important body of public servants.

II

MORTALITY RATE AND PHYSICAL MORBIDITY

THE health of teachers is a subject regarding which so many unsupportable assertions have been made that it seems advisable, even at the risk of taxing the reader's patience, to set forth in some detail the results of the most important investigations which have served as the basis for this volume.[1]

In his 1896 Report to the Board of Education, Superintendent T. M. Balliet, of Springfield, Massachusetts, summarized 159 replies to a "health questionnaire" which he had submitted to the teachers of that city. Of these, 84 per cent testified that in their opinion the teacher of average physical constitution suffers distinct impairment of health within five to ten years after beginning service. Fifty per cent placed it under seven years, while only 7 per cent of the estimates ex-

[1] Numbers in parentheses inserted throughout the text refer to titles in the appended Bibliography.

ceeded ten years. The replies emphasized so uniformly the intense physical strain involved in teaching that Superintendent Balliet was led to recommend the adoption of the sabbatical year.

In 1904, Dr. W. H. Burnham (7), secured 500 replies from teachers in two New England and one Middle West City in reply to the following question: "What conditions in the schoolhouse or its surroundings and in school-instruction have you found injurious to your health?" Although the cities concerned are known to have among the best schools in the country, 37.4 per cent of the teachers stated that their health had been injured in greater or less degree by the conditions they had encountered in them; 10.8 per cent mentioned ventilation; 9.6 per cent, bad light; 7.4 per cent, nervous strain; 4 per cent, standing; 2.8 per cent, outside noises; 2.6 per cent, overcrowded classes; 2 per cent, chalk dust; 1.4 per cent, too long periods of unbroken work. Of fifty-five teachers in Indiana rural schools who were asked to reply to this question, 80 per cent named school conditions which they believed had been detrimental to their health. Among both city and

rural teachers the illnesses most frequently mentioned were indigestion, headaches, nervousness, constipation, irregular heart action, bronchitis, and throat trouble.

European investigations are more extensive, though still far from satisfactory. Dr. Sigel, in 1895, examined all the teachers in Leipzig and found that 42.8 per cent were suffering from definite diseases, mostly affections of the lungs, heart, throat or nervous system (6). The German statistics of Karup and Gollmer had already shown a large amount of nervous, throat, and chest disease, and that rural teachers made the most unfavorable showing, presumably because of larger classes, heavier duties, and worse hygienic conditions (19, p. 330). Their investigation embraces 12,381 teachers of all grades and classes, and in spite of a rather unfavorable showing for tuberculosis and nervous diseases, they found a total mortality rate for male teachers which compared favorably with that for males in all other occupations. Likewise Dr. Catherine Van Tussenbroek (19), reviewing all the available data up to 1904, concludes that for male

teachers[1] in all European countries the mortality rate is probably below the average for the general population, though, as will be shown further on, the mortality from tuberculosis is excessive at certain age periods.

It cannot be too strongly urged, however, that the significance of mortality tables, even in those rare cases when they can be accepted as representing truly the facts, is not always as clear as could be desired. An apparently satisfactory showing may not be so satisfactory when it is analyzed. The fact is, as was long ago emphasized by Arlidge (2), that teachers as a rule belong to a rigidly selected class, both physically and morally, and ought, therefore, to show a *very much lower* mortality rate than the average for "males in other occupations." The latter group includes the saloon-keepers, the drunkards, the stonecutters, the factory workers, the paupers, the criminals, besides all of that large class of persons who are ignorant alike of the causes of

[1] Unfortunately all of the important European investigations concern male teachers only. The health conditions obtaining among female teachers are still, for the most part, *terra incognita.*

disease and of the simple laws of personal hygiene. Allowance made for this, Arlidge believes that teaching cannot be regarded as a healthful occupation. Among other conditions unfavorable to the teacher's health he mentions the strain of school discipline, the lack of variety in the work, confinement indoors, an excessive amount of standing and an overstrenuous training in preparation for the profession.

After all, mortality tables are by no means the final authority. A relatively low general mortality is entirely compatible with a relatively high morbidity, *and just this appears to characterize the teaching profession.* For most diseases, excepting tuberculosis, teaching is accredited with a mortality rate not above the average for the general population. At the same time teachers suffer with undue frequency from a number of complaints which do not appreciably affect longevity, but which are destructive to efficiency and to the joy of living.

The most important data available on this aspect of the subject are the official records, kept by various governments and provident societies,

of absences from duty on the part of teachers, together with full particulars for each case. Records for seven years for the Provident Branch of the National Society of English Teachers, embracing 18,000 members, shows influenza, throat and chest affections, gastro-intestinal and nervous complaints the leading causes of absence for disability. The following table gives a summarized account of the illnesses suffered by these 18,000 teachers in the year 1906 :—

	Males	Females	Total	Total per cent
Influenza	262	211	473	2.07
Nervous complaints	72	89	161	.9
Throat and chest	288	330	618	3.43
Gastro-intestinal	137	148	285	1.58
Debility	32	42	74	.41
Anæmia	0	19	19	.1
Rheumatism	59	51	110	.61
Other complaints	215	211	426	2.36

Total number of claims, 2166, or 12 per cent of the entire number of teachers.

The above figures are about the same as for previous years, except for the steady and rather heavy increase in influenza and chest complaints. Todd, to whom we are indebted for this information (20), concludes that teaching produces an excessive amount of physical morbidity. Teach-

ers, he says, are overinspected and overworked in the effort to secure "unnatural paper results." In spite of the fact that the profession in England is safeguarded by three different medical examinations before employment begins, the mental strain overcomes large numbers. This is especially the case with women teachers. Without trying to place the blame very definitely, Todd emphasizes the evils of overcrowded classes, the unhygienic conditions of the schoolroom, and, most of all, the nervous strain of the work itself. This opinion is justified by the records of retirements under the Teachers' Superannuation Act of England since 1899. The latter credits almost exactly one third of the breakdowns to "neurasthenia," "nervous prostration," "nervous debility," etc.

Similar records for the city of Amsterdam (19, p. 350) show that 24.7 per cent of the 1203 male teachers missed duty from illness during the year 1903, and 34.2 per cent of the 909 female teachers. The proportion was about the same for the secondary as for the elementary teachers. Seventy-nine per cent of the illnesses lasted two

weeks or less, 8.5 per cent between two and four weeks, and the remaining 12.5 per cent over four weeks. The causes of the absences were distributed as follows: Nervous affections, 34 per cent; throat and lungs, 16.5 per cent; acute contagious illness, 6.5 per cent; all other causes, 43 per cent.

The most valuable report yet made of teacher morbidity is the recent one by Dr. Stéenhoff for all the elementary and infant-school teachers of Sweden (18). In case of illness lasting one month or longer, Swedish teachers are entitled to special benefit payments, which are made upon the presentation of medical certificates stating the necessity for leave of absence and the nature of the illness responsible for it. Stéenhoff's report is based upon a study of all such certificates issued between 1906 and 1909. The two following tables, which summarize his chief conclusions, represent by far the most important data thus far available on the hygiene of the teaching profession: —

Extent of Morbidity

	Total No.	Ill 1 mo. or more, Per cent	Av. duration of absence per person	Per cent of absences 1 yr. or more
Male elementary teachers....	5775	4.	4.9 mo.	26.5
Female elementary teachers..	2674	8.9	5.6	28.8
Female infant-school teachers.	10194	3.5	4.6	29.4

The distribution of illness causing absence

	Male elementary teachers. Per cent.	Female elementary teachers. Per cent.	Female infant-school teachers. Per cent.
Nervous troubles.....	32.3	36.	31.2
Pulmonary tuberculosis	7.9	6.	9.3
Other respiratory troubles	17.9	16.8	13.7
Anæmia and general debility...	5.5	12.	12.7
Gastric and intestinal troubles..	8.9	7.6	8.8
All other illnesses.....	27.5	21.6	24.3

We are also informed that 2.5 per cent of the active teaching staff of Sweden are sufferers from neurasthenia of a "pronounced mental type," and that nervous disease causes 50 per cent of the absences lasting two years or over. The Swedish Tuberculosis Committee had already reported (1906) that 1.17 per cent of the Swedish female teachers *in active service*, were sufferers from tuberculosis. It is interesting to note that except for the greater liability of women to anæmia and

"general debility," there are only minor sex differences in physical morbidity for Swedish teachers. At least, we can say that, of absences lasting one month or longer, very few are due to disabilities peculiar to women.

Stéenhoff blames the following causes for the alarming extent of teacher morbidity in Sweden: (1) Poor physical endowment; (2) overstrain during professional preparation; (3) bad hygienic conditions of schools; (4) insufficiency of salary; and (5) the indifference of teachers to the requirements of personal hygiene. He recommends, accordingly, that education be given a physiological and hygienic foundation; that candidates for teaching be selected more carefully; that school environment be made hygienic; that salaries be increased; that teachers should be thoroughly instructed in the laws of personal hygiene; and that the teaching staff be represented in all school councils.

If further evidence is required to demonstrate that teaching is not a profession suited to weaklings, it can be had in the well-established fact that the teachers as a class become prematurely

superannuated. Before reaching that age at which the physician, lawyer, business man, or politician is at his zenith of influence, teachers who have not already discovered their distaste or unfitness for the profession and deserted it find themselves looked upon as undesirables. The teacher may hold a position for several years after 45, but if at this time in life the old position is lost, a new one is not easily obtained; she is looked upon as *passée*, and is always at a disadvantage in competition with the hopeful and enthusiastic girl of 20 or 22 years, newly graduated from the normal school.

It is not uncommon for the city school departments to refuse, by rule, even to consider the application of a candidate above the age of 45 years, however successfully the applicant may have served in other positions. Unless such rules can be shown to rest purely upon prejudice or ignorance, they must be accepted as proof that the work of the teacher is sadly unhygienic.

The average age for retirement on pension in England is 53 years for male teachers and 51 for female (20). In Saxony, for male teachers, it

is 49.1 years, and in Hesse and Bayern, 51.7 years. Summing up the situation for the German secondary teacher, Schroeder states that on the average he completes his preparation for a position at the age of 30 years, secures a position at the average age of 36, and dies or becomes superannuated before 57 (6). Only 1.8 per cent of the German secondary teachers in active service are above 65 years of age, while the proportion of judges is about 6 per cent. University professors reach superannuation later than any other class of teachers, but even these are usually retired, under the provisions of the Carnegie Foundation, at the age of 65 years, the age when lawyers are commanding their highest fees and statesmen are making world history.

This may help to explain why the ranks of teachers have to be recruited so preponderantly from the children of parents who have not taught. Parents who have spent a lifetime in the profession are less likely than others to encourage their children to enter it. Schroeder showed that in Germany, from 1894 to 1896, 48.5 per cent of the lawyers were following the profession to

which the father belonged, 42.5 per cent of the ministers, 44.5 per cent of the physicians, 53 per cent of the government officials, but only 11 per cent of the teachers. The same doubtless holds for America, though the difference may not be as great as in European countries, for the reason that with us teaching is used more often as a stepping-stone to other professions.

III

TUBERCULOSIS AND THE TEACHER

THE excessive mortality of teachers from tuberculosis and other respiratory affections appears to be reliably established. According to Goldhahn (6), this excess for the teachers of Saxony, as compared with the general male population, was approximately 60 per cent for the years 20 to 29 and 23 per cent between 30 and 39. In the Netherlands for the years 1891 to 1895, Van Tussenbroek (19) finds the teacher's mortality from tuberculosis alarmingly high between the ages 25 to 35 years, at which period it exceeded the rate for physicians by about 30 per cent and that for lawyers by over 60 per cent. For Switzerland the same author finds the tuberculosis mortality among teachers 10 per cent higher than for the general population between 20 and 29 years, about the same from 30 to 39, but 30 per cent higher from 40 to 49.

These facts become very significant when we

consider the selected nature of the material of which the teaching body is composed. It would seem that the strenuous training which always precedes the certification in European countries ought to eliminate in advance all candidates of low physical resistance. The fact that teachers reach their maximum mortality rate from tuberculosis at least ten or fifteen years later in life than the general population is also highly significant and supports the assumption that on the average those who qualify for the profession possess more than average resistance to the disease, and that their excess rate from tuberculosis between 40 and 49 years cannot be accounted for except on the hypothesis that it is caused by the peculiar nature of the teacher's work and surroundings.

A few years ago sensational statements were published in the newspapers of France purporting to show an astonishing amount of tuberculosis among elementary teachers in certain cities and districts of that country. These estimates varied from 20 to 33 per cent. Dr. Louis Gourichon, former President of the French Society of School

Medical Inspectors, reports an investigation of the prevalence of tuberculosis among the teachers of Paris and the Department of the Seine which was undertaken for the purpose of exposing the inaccuracy of such charges (8). It was found that in 1906, of 3187 teachers in this Department, 670, or 21 per cent, had consulted a physician for respiratory complaints. Of the latter, however, only about 5 per cent were found to be actually tuberculous. This is almost exactly 1 per cent of the entire number of teachers. In 1907, according to the official records, almost 1 per cent of the teachers of Paris were absent from duty because of tuberculosis. Making what he believes to be reasonable allowance for the presence at duty of a certain number with the disease, Dr. Gourichon estimates that certainly not more than 3 per cent of the elementary teachers of Paris are infected with tuberculosis. It is of course impossible to accept such a finding as any real vindication of the hygienic conditions of the profession.

Such statistics as are available for the United States and Canada are even more disconcerting. Dr. William Oldright, Professor of Hygiene at

the University of Toronto, shows that, so far as tuberculosis is concerned, teaching seems to be one of the most hazardous of all occupations, particularly for females (14). The following table gives the ratio of deaths from tuberculosis in 1000 deaths from all causes among various occupations and professions for the Province of Ontario: —

Stonecutters	650	Male teachers	299
Printers	608	Lawyers	250
Female teachers	570	Physicians	180
Seamstresses	406	Farmers	160

The following table, compiled by the same author from the official returns of the United States Census Bureau, reveals a no less alarming condition in the United States. It gives the deaths from pulmonary tuberculosis out of 1000 deaths from all causes:—

	Baltimore	D. C.	N. Y.	Brooklyn	Philadelphia	Boston	Av. of the cities
Printers and Pressmen	429	342	437	370	377	430	398
Female teachers in schools	452	395	272	336	441	477	396
Stonecutters	432	333	398	423	261	496	391
Dressmakers and seamstresses	396	386	385	350	405	388	385

Saloon-keepers and bartenders....	213	305	296	295	223	276	268
Policemen, watchmen, detectives	183	187	190	169	161	113	167
Farmers, planters, overseers.....	141	175	207	128	103	83	139
Lawyers	119	125	102	236	139	96	130
Physicians and surgeons	204	103	120	113	135	90	128
Clergymen.....	138	120	153	91	140	83	121

These statistics indicate a higher tuberculosis mortality for the teaching profession than for the notoriously unhealthful occupations of stonecutter or saloon-keeper.

For the entire census registration area of the United States we have the following ratios of deaths from tuberculosis (out of 1000 deaths from all causes) in teaching as compared with other occupations taken together:—

(1) Females engaged in teaching..... 256
(2) Females engaged in other occupations 215
Excess of (1) over (2), 19 per cent
(3) White females engaged in teaching..... 251
(4) White females in all other occupations..... 196
Excess of (3) over (4), 28 per cent
(5) Males engaged in teaching..... 184
(6) Males in all other occupations..... 154
Excess of (5) over (6), 19 per cent
(7) White males engaged in teaching..... 175
(8) White males in all other occupations..... 145
Excess of (7) over (8), 21 per cent.
Excess of females over males, 39 per cent.
Excess of white females over white males, 43 per cent.

In the above table two facts appear and reappear with such constancy and uniformity as to leave no reasonable doubt of their approximate reliability: (1) *The higher mortality for teachers, both male and female, than for persons of the corresponding sex in other occupations.* This excess is never less than 19 per cent and rises as high as 26 per cent. (2) *The higher mortality for female teachers than for male teachers,* the difference between the two being 43 per cent for white teachers and 39 per cent for teachers of all races.

CAUSES AND PREVENTION OF TUBERCULOSIS AMONG TEACHERS

The teacher's excessive liability to tuberculosis should hardly occasion surprise, considering the conditions of the average school environment. For six to eight hours each day the teacher breathes an atmosphere heavily laden with irritating particles of matter,—the mineral dust of chalk and soil, lint from the clothing of forty or fifty children, millions of particles of cast-off cuticle from their bodies, and foul bits of epithelial tissue from their respiratory passages. Tests have

shown that dust particles in the average school-room are more than a hundred times as numerous as in ordinary outdoor air. The number increases tremendously as the school-day advances. It is multiplied many times by a ten-minute lesson in calisthenics or by the children marching and playing in the school-room. The ventilating system, instead of diluting the dust by the addition of pure fresh air, not infrequently furnishes a supply of air which is already polluted. About 12 per cent of the schoolrooms in 758 leading cities are not swept oftener than once in three days. The floors of fewer than one third of them are washed as often as once in three months, while in about six per cent of them this operation is wholly unknown.[1] The murderous feather duster is being gradually driven from the city school, but in the smaller towns and rural districts it is hardly yet regarded with serious suspicion. If we would rescue school-teaching from the list of dangerous occupations, it will be necessary to establish certain standards of school sanitation, such

[1] Leonard P. Ayres: *What American Cities are Doing for the Health of School-Children.* Annals Am. Acad. Polit. and Soc. Sci., March, 1911.

as daily sweeping, weekly washing of floors, the use of dustless floor dressings, oil brushes, dampened cloths for dusting, sanitary cloak-rooms, screened intakes, etc.

But the school dust, irritating as it is to the delicate passages of the nose, throat, and lungs, is probably less injurious than the high temperature and the abnormally low humidity and the stagnation of the average school atmosphere. When outside air of 30° or 40° and of ordinary humidity is heated to 70° or 75°, its capacity for water vapor is enormously increased. Such air is ravenously water-hungry. In fact, tests with the hygrometer usually reveal a relative humidity in schoolroom air of 25 to 30 per cent. It is drier, therefore, than the winds of the Sahara Desert. It licks up every available atom of moisture from every source, — from the furniture, which promptly falls to pieces, and from the skin and respiratory passages of the persons unfortunate enough to have to breathe it. The nasal passages, one function of which is to moisten the air before it reaches the lungs and thus to facilitate osmosis, are overworked. The lining of nose, throat, and

lungs becomes parched and irritated, producing chronic nasal and bronchial catarrh.

Again, air that is stagnant, overheated, and of low humidity paralyzes the body's heat-regulating mechanism and predisposes one to colds and to influenza. Vaso-motor control of the circulatory system and the central control of heat production demand for their normal functioning the stimulus of *cool, fairly humid air, in motion.* It is the lack of one or more of these qualities that contributes most to the unhealthfulness of schoolroom air, not the accumulation of carbon dioxide as was once believed.[1]

The only way to maintain the teacher's power of physical resistance at the normal level is to supply her workshop with an abundance of fresh air which has not been overheated and robbed of its humidity. There are systems of heating and ventilating apparatus which will accomplish this result, but most of those in actual use fall lamentably short of this ideal.[2] The absence of a

[1] Macfie: *Air and Health*, Chap. VI, VII, IX, and XIII.

[2] School architects or school boards desiring information on this point should write to the Department of Child Hygiene, Russell Sage Foundation, New York City.

satisfactory method of artificial ventilation can be largely atoned for by the proper use of windows and doors. These should be opened wide, for a few minutes at least, every hour of the day. The common practice of sweeping and dusting with windows closed ought not to be tolerated. It is often necessary for the teacher to use every argumentative resource in educating the school board and school janitors to a proper understanding of the importance of ventilation and the care of the school-building. The teacher should remember that in asserting her rights in such matters she is protecting not only her own health, but that of her pupils as well.

For the sake of teachers hardly less than that of pupils, open-air schools should be multiplied. The latter have been shown to have a remarkable effect in increasing the percentage of hæmoglobin and the number of red corpuscles in the child's blood, and would certainly do as much for the anæmic teacher. In making such blood tests the school physician would do well, in many cases at least, to include the teacher in his examinations.

Finally, the teacher herself has a very positive part to perform if she would escape the danger incident to an indoor and sedentary life. If she recklessly overworks, if she does not look carefully to her diet and her sleep, if she does not spend one or two hours every day in wholesome exercise out of doors, then she cannot justly blame the school for any form of ill health to which she may fall a victim.

At the same time, the state cannot evade its share of the responsibility. Fortunately, economy and safety lie in the same direction. To employ a sickly, anæmic teacher is both a poor form of charity and a doubtful favor to the one employed. State legislation will have to be invoked for the protection of all parties concerned. Denmark's Tuberculosis Act of 1905 is a praiseworthy example of this kind of legislation. It requires all candidates for the teaching profession to take a special examination for tuberculosis before employment begins and an additional examination at each reappointment. Teachers in service who contract the disease are retired on a liberal pension or given a long leave of absence on part pay

until recovery is complete. By the same act the teachers of Denmark were exempted from all janitorial service.

It is well to emphasize that the compulsory medical inspection of teachers here advocated does not have as its aim the heartless elimination from the profession of all who are physically below normal. While occasionally preventing an unfit candidate from entering the profession, such a system will, by the timely discovery of incipient disease, and by personal instruction as to the care of the health, contribute in a positive way to the conservation of the teaching force.

IV

THE TEACHER AS NEURASTHENIC

THE neurasthenic teacher is a familiar picture to us all: the drawn face and knitted brow; the "bottled lightning" features; the loud, rasping voice, querulous or gushing instability, et cetera. These are the exterior decorations. Search deeper and we uncover some or all of the traditional mental furnishings of the neurasthenic household, — nervous headaches, disturbed sleep, functional irregularity of the heart, anxiety states, hypersensitiveness, fixed ideas, and the feelings of lamentable insufficiency.

As to the teacher's excessive liability to abnormal states of mental exhaustion there seems to be absolute unanimity of opinion among all who have really investigated the question, though the actual proportion of nervous wrecks in our teaching force cannot, of course, be stated. Considering the infinitely varied shades and degrees in which the disease may exist, perhaps figures, after

all, would be less helpful than misleading. But the number must be very considerable, possibly as great as three to five per cent. Basing the inference upon the large number of "confessions" which have come to him as a result of lectures delivered before teachers on this subject, the writer believes that not even school superintendents and boards of education realize the terrible strain under which teachers occasionally work. From the average citizen, who as a matter of course looks with undisguised envy upon the six-hour day, the free Saturday, and the long summer vacation of the "fortunate teacher," no sympathy need be expected.

Of 116 English teachers who replied to a questionnaire of Francis Galton, 23 had suffered a nervous breakdown, from the effects of which 21 thought they would never recover. Similar evidence from the questionnaires of Balliet and Burnham has already been cited. Medical writers on neurasthenia have long recognized the teacher as among the most frequent victims of the disease.[1]

[1] See, for example, the German texts by Biswanger, *Die*

The most suggestive study in this connection is that of Dr. Ralph Wichmann, who has given us an admirably complete analysis of 305 replies to a questionnaire which he submitted to German teachers (21). The questionnaire asked for information regarding heredity, health at all periods of life (particularly during the period of state examinations preparatory to entering the profession), size of classes, amount of private instruction carried on, extent of fatigue suffered, nervous symptoms, heart, lung, throat, and other diseases. Of the 305 men who replied, only 46, or 15 per cent, were entirely well. The 85 per cent who were ill mentioned the following diseases, presented here in the order of their frequency: — Nervous troubles, 78 per cent; ear, nose, and throat, 23 per cent; chronic lung disease, 7 per cent; infectious diseases, 27 per cent; digestive troubles, 14 per cent; organic heart disease, 3 per cent; miscellaneous, 9 per cent.

The 204 who confessed to a greater or less

Pathologie u. Therapie der Neurasthenie, p. 55; also the valuable monograph by Maria von Manaceïne and Dr. L. Wagner, *Die Geistige Ueberbuerdung.*

degree of neurasthenia suffered from the following nervous symptoms: morbid anxiety and worry, 45 per cent; obsessions, or fixed ideas, 35 per cent; headaches, 71 per cent; heart palpitation, 58 per cent; from *all* the above nervous symptoms, 17 per cent.

Wichmann's results are extremely suggestive and present many striking descriptions of individual cases of overstrain, but they will be misleading unless the reader bears in mind that in all probability the figures do not represent *average* conditions in the profession. The teachers answering his questionnaire were only a fraction of the number to whom it was sent, and we have no means of ascertaining the health conditions of those who did not reply. Those who did take the trouble to do so probably included a disproportionate number of sufferers.

It is at least comforting to know that actual insanity is little if any more prevalent among teachers than among other classes of people. Van Tussenbroek, after patiently ransacking all available lunacy statistics from the public and private hospitals of Germany, Switzerland, and

Holland, has come definitely to the conclusion that teaching does not especially predispose to insanity, and there is but slight and scattering evidence to dispute this. Likewise the suicide rate of teachers is not above the normal for the population in general. The teacher escapes these extreme evils to fall prey to a chronic state of nervous exhaustion which in its pathological nature is not immediately related to any of the neuroses of insanity.

CAUSES AND PREVENTION

The assumption sometimes made that teachers are more than ordinarily predisposed to the neuroses by fault of hereditary endowment seems hardly justified by the known facts. Our teachers come mostly from the healthy middle classes which have escaped both the degenerating effects of luxury and the dwarfing influences of extreme poverty.[1] From the tabulated replies given in answer to his question regarding hereditary an-

[1] See the excellent monograph by Lotus D. Coffman, *The Social Composition of the Teaching Population.* New York, 1911.

tecedents, Wichmann concludes that in at least 76 per cent of his neurasthenics there could be no question of hereditary predisposition. Instead, he traces the responsibility chiefly to the following three factors: (1) *The nervous strain incident to the state examinations for certification.* These in Germany extend over several months and are very difficult. Seventeen per cent date the beginning of their nervous symptoms at the examination period. (2) *Private instruction outside of school hours,* which seemed to be a factor with fifty per cent of the cases. German teachers, like our own, are poorly paid, and much more generally than our own resort to private instruction to help piece out a comfortable living. Often the private instruction amounts to fifteen or twenty hours per week. (3) *Overcrowded classes.* Eighty per cent of Wichmann's patients were teaching classes of more than sixty pupils. Balliet's returns testified in similar strain to the fatiguing effects of the overcrowded class. It appears that as the number of pupils in a room passes beyond a certain point the strain upon the teacher increases somewhat in the manner of a geometric

ratio. Both the hygienic and pedagogical safety limit lies probably not far above thirty pupils per teacher.

Wichmann's inventory of causes is by no means complete. Perhaps there is no one provision which would lighten the burden of teachers more than a thoroughgoing system of *segregation of exceptional children.* The presence of two or three incorrigibles in a class of forty normal children easily doubles the strain on the teacher's nerves. What teacher does not recall the heaven of bliss that followed upon the removal of the school's evil genius? The backward pupil also contributes his share to the worries of the conscientious teacher. To retain such pupils in the regular classroom is an unadulterated evil for everybody concerned,—for the pupils themselves no less than for the teacher. The latter cannot meet their needs except at the expense of the majority of normal children who have the first claims upon her time and energy. The teacher can hardly be blamed for the quite general neglect and misunderstanding of atypical children. These will not be understood or properly edu-

cated until they are universally segregated in small special classes where they can be instructed in a course of study suited to their peculiar interests and abilities by a teacher whose pedagogical training has fitted her to understand and deal with them.

Again, many teachers are overburdened by mere quantity of work apart from any of its disagreeable features. The teacher's "short day" is more apparent than real, as many a beginner is surprised to discover. As a matter of fact, duty begins at least thirty to fifty minutes before the class is assembled, and continues almost without interruption until long after the close of the afternoon session. The teacher who can manage to limit her school-day to seven hours, exclusive of evening work, may consider herself fortunate. Under all but exceptional conditions evening lessons will consume one or two hours additional. The average working-day for the teacher is therefore no shorter than the recognized standard day for physical laborers. Sometimes it is considerably longer. The writer has known many teachers whose day of mental labor stretched, with

only brief intermission, from eight o'clock in the morning to eleven or twelve at night.

The main argument, however, relates to the peculiarly exhausting nature of the work rather than to its gross quantity. The teacher works always under full steam. She is hardly permitted a moment of quiet concentration, but instead must constantly strive to apportion her attention to satisfy a number of simultaneous demands upon it. While hearing the recitation of one group of pupils, she must maintain order and industry among another group. The recitation itself involves severe mental strain whenever it is characterized by a genuine give-and-take relation between teacher and class, and when it avoids the mechanical routine of a predetermined, schematized, question-and-answer procedure. Every question must be adapted to the class situation as it varies and shifts from moment to moment. The teacher must scent the implications of each reaction she elicits from her pupils and must utilize these implications almost instantaneously in shaping those parts of the recitation which are to follow. While receiving an answer to her last

question she must decide upon the next one to ask. At the same time she must at every point be vaguely conscious of the directing purpose of the recitation and must evolve every step in the light of this purpose. With yet other fragments of her attention she must look out for grammatical errors, for the passing of time, for the maneuvers of mischief-makers in the rear, for requests to leave the room, and for other things impossible to foresee or enumerate.

To work with ease and effectiveness it is necessary to concentrate. This teachers are not permitted to do. Psychological experimentation shows the extreme difficulty of carrying on simultaneous mental processes, such as committing poetry to memory while engaged in arithmetical computations, etc.; and processes regarded as simultaneous are usually found on psychological analysis to be carried on in rapid alternation. The teacher's attention, therefore, must shift with lightning speed from one to another aspect of her work. Psychopathology teaches that this delicate adjustment to finely discriminated requirements of concrete situations is the most difficult task which

the mind is ever called upon to perform, a far severer requirement than is imposed by the demands of abstract thinking. This is proved conclusively by the fact that in all typical forms of mental degeneration, such as characterizes paresis, abnormal chronic fatigue, old age, etc., the knack of instantaneous adjustment to a novel situation suffers impairment before the power of logical consecutive thinking has been appreciably disturbed. Mental decay proceeds from above downward, and the first onslaught of nervous fatigue in the teacher renders her efforts less efficacious and at the same time immeasurably more difficult and trying.

The teacher's desk is seldom quite clear. Recesses and the noon hour permit little actual rest. Every day brings its quota of papers to examine and lessons to prepare. It is estimated that the average elementary teacher corrects from 6000 to 12,000 papers in the course of a school-year. The teacher of English, foreign language, or history in the high school performs an equivalent amount of work on papers which are fewer in number but of greater average length. Important records

must be kept with conscientious care. There are parents to consult, teachers' conferences to attend, and incorrigible or defective pupils to worry over. If her school is medically inspected but lacking the blessed services of the school nurse, the teacher must take upon herself the tedious follow-up duties of the latter, and the pupils are fortunate if their arithmetic instruction does not suffer while she is planning new arguments to convince parents that adenoids and enlarged tonsils ought to be removed.

Both because of the peculiar strain of the teacher's work and because of the multiplicity of duties which must constantly be kept in mind, it is misleading to think of her work-day at all in terms of hours. Wagner is not far wrong (13) when he estimates one hour of teaching as equivalent, from the standpoint of fatigue, to two hours of ordinary study done in quiet without the necessity of speaking. Four hours of actual teaching thus represent about eight hours of ordinary work. Add to this two hours for correcting papers, preparing lesson plans, supervising games, etc., and the four-hour day has grown to one of ten.

The belief that the "fatigue coefficient" of teaching is about twice as great as that for most other kinds of mental work probably comes much nearer the truth than the usual assumption that an hour always equals an hour. If we can accept this standard as even approximately correct we are forced to the opinion that *many of our teachers are unmercifully sweated.* No milder term does justice to the case when, as is not uncommon, the teacher gives instruction for six or seven fifty-minute periods daily, in addition to discharging the usual round of extra duties requiring two or three hours additional. Is not this the equivalent of at least twelve hours of work in the quiet seclusion of office or study?

The standard for the secondary schools of Germany is twenty to twenty-four fifty-minute periods of actual class instruction per week, or four to five periods per day. This standard prevails by law. Reasonable as it may look to the strenuous American teacher, the German teachers consider it productive of overpressure and are endeavoring to bring about a reduction of the standard to fifteen or eighteen periods per

week.[1] The weekly schedule for the teacher in American normal schools varies from a minimum of fifteen to a maximum of thirty-five or forty hours. The writer knows from experience that more than the above minimum is overpressure, provided the classes are fairly large and the out-of-class duties are not neglected. Our college and university professors give instruction all the way from five to twenty-five hours per week; the average for the middle grade college probably lies between fifteen and twenty hours, for the best universities, not far from ten hours.

But hour standards should always be relative to the nature of the instruction. Certain kinds of routine teaching would be best measured in foot pounds of vocal energy,—though even the mechanical operation of the speech organs is fatiguing. On the other hand, whenever the instruction is of a kind which demands creative thinking or extended collateral work of scientific nature,

[1] It may be noted also that in many of the German secondary schools the afternoon session is dispensed with, thus giving both teacher and pupils more opportunity for outdoor exercise.

the attempt to measure it by the application of any mechanical, theoretical standard reduces to absurdity. The hardest-worked college professor may not meet more than two or three classes per week, and there are college drones who teach twenty classes.

It is almost inconceivable that anyone should have taken seriously the recent proposal of an "efficiency engineer," relative to the *unit hour* as a gauge of the college professor's output. The *unit hour* is defined as one hour of instruction given to one student. By this brilliant device the professor's productiveness, in the industrial sense, becomes the readily calculable product of the two factors: (1) number of teaching hours and (2) size of classes.[1] In any kind of teaching, the more numerous the hours of instruction the more mechanically and superficially this will be done. Under the pressure of a thirty-hour teaching program our high-school teachers degenerate to the plane of lesson-setting and lesson-hearing, which is one of the most charac-

[1] Bulletin of the Carnegie Foundation for the Advancement of Teaching, 1910.

teristic traits of American teachers as compared with those of Germany.[1]

It is emotional overstrain, even more than intellectual, which is responsible for the overpressure of teachers. Authorities are agreed that strong emotion is decidedly more fatiguing than abstract thinking. The well-known ergographic researches of Mosso,[2] on this point have been lately confirmed by the new eye-test determination of fatigue by Bauer (4). Many a teacher is haunted constantly by a vague fear of unpleasant conflicts with parents, pupils, or the higher school authorities. The American teacher is less an autocrat, and the American pupil less a marionette, than is the case in European countries, where, as a rule, the teacher is little exposed to the shafts of disagreeable criticism on the part of the public. Most trying of all is the necessity of working under a school administrative régime which hedges the teacher about with unnatural restraints and destroys her individuality.

[1] See Stanley Hall, *Educational Problems*, vol. II, chap. XIV "The German Teacher Teaches."

[2] A. Mosso, *Fatigue*, 1906, 334 pages.

THE TEACHER AS NEURASTHENIC

The teacher's lack of opportunity for self-objectification cuts her off from one of the most important motivating influences known. It is always invigorating to see the results of our work become immediately manifest in tangible form. When this is possible, the barriers of fatigue are pushed farther away. But the essential results of the teacher's labors do not appear for many years, and even then they are so intermingled with other strands of social and environmental influences working simultaneously upon the pupil that they cannot be weighed or identified with absolute certainty. Consequently feelings of insufficiency and self-dissatisfaction ensue. In the figure of Van Tussenbroek the teacher half-consciously thinks of herself as a wheel, rotating always upon the same axis, never advancing.

The investigations prove that it is the beginning teacher who runs the greatest risk of pathological nervous exhaustion. With forty-seven per cent of Wichmann's neurasthenics the nervous troubles appeared in less than five years, and within fifteen years for eighty-seven per cent. The reason is probably threefold: (1) the new

teacher is more prodigal of energy from excess of enthusiasm and because she has not learned the necessity of mental economy; (2) she lacks the experience which would enable her to work with the least expenditure of effort; and (3) the early years act as a sieve to eliminate all but the strongest. Whatever the relative share of these factors, it should be understood that *the first years of employment are critical for the teacher's health.* To ignore the laws of physical or mental hygiene at this period is to sow the seeds of life-long nervous affliction and premature superannuation. School administrators can aid in averting this danger by lightening the burdens of the young teacher, by instructing her in economical methods of work, and still more by patient sympathy, kindly criticism, and frequent encouragement.

If society would have for the teachers of its children men and women of good native endowment and if it would keep these at a high level of professional efficiency, it will be necessary to increase the salaries and to improve the tenure. We are rather too much inclined to boast of our

"lavish" educational expenditures. There is no good reason why they should not be two or three times as great as they actually are.[1] One hundred and fifty to two hundred dollars is not a very lavish expenditure for the child's eight years of instruction in the grades, nor is four hundred and fifty dollars a very princely sum to represent the average salary for the American school-teacher. Remembering that a very large proportion of our public-school teachers have other persons dependent on them, and that the plain necessities of life cost the family of average size in our larger American cities about eight hundred dollars per year, it is superfluous to argue the case of the teacher any further.

Until conditions are improved along this line, it will be impossible either to secure the best raw material for the rank and file of the profession or to make the most of the material which now is available. At present the financial status of the American teacher is as little conducive to physical efficiency as it is to soul expansion.

[1] See the excellent little book by President Eliot, *More Money for the Public Schools*, 1903.

THE TEACHER'S HEALTH

The superintendent and board of education should consider themselves no less responsible for the health of the teachers than for that of the pupils. They cannot absolve themselves from moral guilt when a teacher's health is shattered by causes lying in their power of prevention. The heartlessness with which teachers who have worn themselves out or have become ill in the public service are turned out to subsist upon the charity of friends or society deserves the sharpest condemnation. Now that our "soulless" corporations have long since abandoned this inhuman practice, it would be fitting for the virtuous public to emulate their example.

Finally, the teacher herself may accomplish something toward the amelioration of her environment. In self-defense, if for no other reason, she should always be found an advocate of measures pertaining to the hygiene of the school. She should make herself heard on all questions of ventilation, lighting, size of classrooms, number of pupils per teacher, classification of pupils according to ability and the segregation of defectives and incorrigibles. She should guard her

professional freedom as her richest treasure and oppose all measures which tend to mechanize her efforts and rob them of the personal and spiritual element. Without participating in unprofessional and unseemly agitations, teachers may legitimately use their influence, individually and collectively, in favor of movements relating to salary, tenure, and retiring allowances. It would be only fair and reasonable if the teaching body of cities were granted representation upon the board of education.

V

THE MARGIN OF SAFETY

In recent years it has become generally recognized that every normal person is possessed of stores of energy which he does not habitually draw upon, and even the existence of which he does not ordinarily suspect. As set forth in the brilliant essay of Professor William James.[1] "Fatigue gets worse up to a certain critical point, when gradually or suddenly it passes away, and we are fresher than before." James considers this the mental counterpart of the physiological phenomenon of "second wind," and believes that it demonstrates the existence of several "levels of energy," deeper and deeper strata of "combustible or explosive material" which may be tapped "layer after layer." The inference is that we habitually live too near the surface: that "we ener-

[1] "The Energies of Men," *Science*, 1907. The essay appeared also in *The American Magazine* for November, 1907. See the ingenious statement of the same principle by Dr. Boris Sidis, in *Psychopathology*, chap. XIV, 1907.

gize below our maximum"; that "we have contracted the habit of inferiority to our real self"; that we live as if "our fires were damped" and "our drafts checked"; in a word, bankrupt in the midst of plenty.

That such a reserve of energy actually exists is borne out by all the known facts relating to the physiology and psychology of fatigue states. But to assume, as some have done, that the expenditure of energy may be pushed to the extreme limit and the pace kept up without injury is unnecessary and unwarranted. We may be reasonably sure, if there is a margin of power not habitually used, that its existence is necessary *as a margin*, that it is a *Factor of Safety* developed to meet exigencies.

In truth this factor of safety is a principle which is a familiar phenomenon everywhere in biology and physiology. Wherever we look we find that nature preserves a fine balance between extravagance on the one hand and unsafe economy on the other. The factor of safety is in evidence in almost every structure of the human body. We have two kidneys, but one, or even

two thirds of each, may be removed with impunity *so long as the remaining portions remain sound.* There are two vagi nerves to control respiration, whereas, *under ordinary circumstances,* either does the work perfectly. One sixth of a healthy thyroid gland is sufficient, but the pitiable condition of cretinism, caused by the entire absence of the thyroid, proves the higher economy in so wide a margin. One half of the liver and nine tenths of the pancreas have been demonstrated to represent factors of safety; likewise one half of the digestive ferments. That the factor of safety in "vital capacity" is at least two is proved by the fact that rabbits have survived the excision of one half their lung tissue without deterioration of health as long as other organs and functions remained intact. Almost every organ carries this form of insurance, and in general it may be stated that the more vital the structure, or the more precarious its functioning, the larger the factor of safety allowed.

Nature's rule of allowance for a reserve works so well that engineers have seen fit to copy it. The practice in engineering construction is to

build boilers, bridges, steel reinforcements, etc., capable of withstanding a strain six to ten times as great as they will ever be called upon to bear. That is to say, the factor of safety allowed is usually between six and ten.[1]

The lesson for mental economy to be gained from such facts is patent. Instead of counseling us to probe habitually and intentionally for "deeper levels of strata," it teaches us rather to preserve them inviolate for extraordinary emergencies. Instead of exploring the uttermost limit of our capabilities and living under its very shadow, we shall be wiser to consider that limit a dead line. For the intellectual worker to try to get along without a margin of safety is as unsafe as it is for a bank to dispense with its cash reserve. Or rather more so, for the bank in emergency may secure temporary credit from its fellow institutions; but credit does not figure in the economy of nature.

That our civilization is already too strenuous is a belief voiced by our leading physicians,

[1] S. J. Meltzer, *Factors of Safety in Animal Structure and Animal Economy*. The Harvey Lectures, 1908, pp. 139–169.

alienists, and educators. Nervous diseases of all kinds appear to be on the increase. There is a host of ailments whose close dependence upon nervous disorders physicians have only recently recognized. Some authorities impute to widespread nervous exhaustion the increase in digestive disturbances, eye-strain, dental caries, "hay fever," and many other symptoms of what many have chosen to call racial degeneracy. Nothing reveals nervous weakness as surely as the crucial nodes in physical development, such as second dentition, puberty, and the menopause; and anthropologists tell us that these, as well as parturition, nursing, and the diseases peculiar to women, are becoming more critical as "civilization" advances.

Little wonder. The nervous system has been granted no respite to strengthen itself for the countless burdens newly placed upon it. Our specialization of industry, robbing work of the variety which gives rest; the increasing necessity for punctuality and economy of time; the lightning-like spread and assimilation of new ideas; the growing magnitude of every person's world;

the more frequent occasion for domestic and financial troubles, coupled with the cruel necessity of emotional repression to suit the nervous fastidiousness of society; the omnipresent spirit of individualism, keenest in America where freedom emboldens the humblest born to aspire to the seats of power; these, together, constitute an *ensemble* of conditions which have placed a higher premium upon personal hygiene and mental economy than ever existed before.

It would be interesting if we could calculate the waste of energy and the inefficiency due to lack of knowledge of the most economical methods of running the human psychophysical machine. No one will ever know the extent of this loss, but it has been estimated by wise hygienists at not less than twenty-five to fifty per cent of the entire possible output. It is incumbent upon anyone who would keep his mind and body at the level of efficiency on which they were meant to function to study not only the *general* laws of mental hygiene, but the special peculiarities of his own case as well. There is nothing in which people differ more than in the

true economical limits of a day's work. That there are rare individuals who appear to thrive on a diet of fourteen hours of mental work and six hours of sleep is no intimation that the rest of us should follow their example any more than we should emulate the "strong men" of the circus who take their exercise with dumb bells weighing three hundred pounds. The nervous system may be geared for any length of work-day, from two to sixteen hours. Darwin could work only about three hours per day; Herbert Spencer, four; Emmanuel Kant, six. A more bountiful Providence granted to Thomas A. Edison, also to the late President Harper, of Chicago University, a sixteen-hour nervous system. The daily limit for one of the wisest and most scholarly college professors known to the writer is about six hours; that for the stupidest of his acquaintances approximates twelve hours. There is no known correlation, either positive or negative, between intellectual productiveness and resistance to fatigue. To estimate your efficiency by the length of your day's work is thus on a par with purchasing your library by

the yard. The proper thing to do is to find the optimum limit for you, and then abide within it.

The danger for the ambitious and conscientious teacher lies always on the side of shortsighted prodigality of energy. Where one teacher underworks and oversleeps there are scores who are addicted to "pillow thinking" and overwork. While general statements in such matters can never have more than suggestive value, it is safe to say that there are probably few persons who can profit permanently by more than one hour daily of *professional work* in addition to the six which must necessarily be served in the schoolroom. Books on school management (written by pious professors of pedagogy who teach one or two hours daily), solemnly counseling teachers to spend at least two hours in evening preparation of details for the morrow's lessons, cannot be too strongly condemned. At least for the elementary teacher, a half-hour of this kind of preparation, followed by an hour or two of general reading or the pursuit of some hobby in art, literature, or science, would be infinitely preferable to the cultivation of such narrowing pedagogical pedantries.

THE TEACHER'S HEALTH

The traditional caricatures of the teacher are but a composite photograph of the symptoms of ill health and fatigue: irritability, nervous distraction, dogmatism, strident voice, superficial demonstrativeness, indulgent solicitude, etc. Accordingly, if the teacher would attain either sanity or success, she must skill herself in the economy of nervous energy. Teacher personality, which all agree is so indispensable, however differently we may define it, is very largely teacher vitality. As health deteriorates, the teacher becomes either overcritical, unsympathetic, and less human or else apathetic and dull; discipline takes wing; teaching becomes a labor whose sole reward is the material support of a wretched and fruitless existence.

Sleepiness and the feeling of fatigue are the twin guardians of the Factor of Safety. Both give timely warning that the danger point is ahead; but their protests unheeded, they finally stand aside and let us pass on. Their function is anticipatory. As Claparède has so well stated it, we sleep not because we have actually become exhausted, but in order that we may not be re-

duced to that extremity. To reduce the hours of sleep from nine to seven, or from eight to six, may rob us by imperceptible degrees of just this margin of safety. Of 346 normal-school students, mostly from eighteen to twenty-two years of age, who were asked by the writer to state the number of hours of sleep with which they could do their best mental work, ninety-two per cent placed the limit *above eight hours.* Almost exactly the same testimony was given by 110 women in college, though a majority of college men estimated their sleep requirements not above eight hours. It is safe to say that for teachers, at any rate, danger lies less in excess of sleep than in its deficiency.

If the teacher is a victim of insomnia, or if her sleep is habitually disturbed by nightmares and anxiety dreams, let her remember that these are not disease entities in themselves, but rather symptoms of some more general nervous disorder. The cause is usually to be sought in a chronic state of exhaustion brought on by overwork, grief, worry, eye-strain, constipation, or neglect of diet, exercise, etc., or by many of these factors

operating in conjunction. The adoption of a regimen hygienic in all the above respects will bring relief in about ninety-nine cases out of a hundred. The hundredth person is advised to search for someone competent to treat nervous disorders.

VI

HEALTH SUGGESTIONS FOR THE TEACHER

THE purpose of this all too brief chapter is merely to introduce the reader to a few of those aspects of personal hygiene which are of special importance for teachers. A carefully selected bibliography of personal hygiene is appended to the general bibliography, in the hope that it may further stimulate the interest of teachers in the problem of efficient living.

SAVING THE EYES

The biological study of the human eye teaches that it was not made for the kind of work teachers and students have to do. Always, until a few generations ago, the eye was permitted to roam in comparative freedom. The number of its movements perhaps rarely exceeded twenty or thirty per minute. But the invention of Gutenberg, with its consequent development of educational ideals and facilities, has harnessed the eye

to the wearying treadmill of the printed page. Working at this unnatural task it must accomplish from one hundred to one hundred and fifty separate movements and fixations per minute. It has not had time to adjust itself to the new demands upon it, and by hastening overmuch its domestication we threaten it with degeneracy.

Due to the nature of their work, defective vision is more common among teachers than among any other class of people. In Germany about thirty-five per cent of the teachers wear glasses; though in the United States probably not more than fifteen to twenty-five per cent. The difference is largely if not wholly explained by the unwillingness of our women teachers to risk the disfigurement of spectacles. Consequently many of them are chronic sufferers from relievable eye-strain. For such teachers the eyes are the "weak link" bringing misfortune to their best directed endeavors.

It is unnecessary to set forth at length the part played by eye-strain in the production of headaches, insomnia, and other nervous symptoms. The evil of eye-strain is, physiologically, a

double one; it dissipates the store of nervous energy while at the same time disturbing the reflex nervous control of complex vital functions, such as digestion, circulation, etc. Severe eye-strain may entail profound derangements of the nutritive and excretory functions and thus in an indirect way lay the foundation for ill health of almost every description. The entire body can be fatigued by the overwork of the minute muscles which accommodate or converge the eyes. The teacher who permits her nervous energy to be drained off in this (usually) needless way can devote to her work only the dregs that remain.

Nor does the significance of eye-strain among teachers lie merely in the discomfort it produces or in the daily and hourly handicap it offers to psychophysical efficiency. Eye-strain is a symptom as well as a cause, and often serves as a delicate barometer, or health indicator, for the entire physical machine. As long as energy is abundant, *minor errors* of refraction are automatically corrected without bringing about nervous bankruptcy. When the reserve of energy necessary for this correction is lacking, the slightest

visual defect may register its complaints in the most diverse and incredible symptoms. The abnormal frequency of eye-strain among teachers thus affords evidence of the wide prevalence of professional overstrain.

Teachers should make themselves familiar with the hygienic requirements of bookmaking and refuse to read or teach from books which grossly transgress the standards for size of type, length of line, quality of paper, etc.[1] The slightest acquaintance with the hygienic norms of printing would have rendered impossible the adoption as texts of a great many books used in our public schools. It is well also to form the habit of occasionally looking off the book for a minute or two when engaged in reading. Few people are careful enough to avoid reading in light of deficient intensity or improperly placed. Many a teacher is made a nervous wreck by the necessity of facing a strong light in the schoolroom. Others injure their eyes through the requirement of a needless amount of written work which must be

[1] See the excellent volume by Dr. E. B. Huey, *The Psychology and Pedagogy of Reading*, chaps. II and XXI.

read and corrected. A good many teachers would do well to ponder the advice of Stanley Hall suggesting the substitution of real teaching for some of the correspondence courses often carried on with the pupils.

But if the eyes "go bad" in spite of hygienic care, the thing to do is to consult the best oculist in reach. Having secured competent advice she should follow it regardless of whether spectacles are becoming to her particular features. If the teacher is not clear on the difference between an oculist and an optician, she had better inform herself. Economy here is consummate extravagance.

EXERCISE AND THE OUT OF DOORS

If the teacher would be healthy she should take varied daily exercise, preferably of the play type. It is well to cultivate a hobby that will take one much out of doors, such as nature study, horseback riding, tennis, etc. It is necessary to guard against undertaking too many collateral duties, such as Sunday-School teaching, club-work, and the like. No opportunity should be lost to coun-

teract the onesided sedentary life the teacher must of necessity lead. As expressed in the advice of one counselor of health, "Every man who is engaged in a sedentary indoor occupation ought to spend at least two hours a day in the open air in some light but brisk and enjoyable form of exercise — not merely as an act of self-indulgence of his lower nature, but as a means of increasing his efficiency." [1] The same author reminds us that for the period of manhood and womanhood, "the rod and the rifle, the racket, the paddle, and the snowshoe," are the most suitable types of gymnastic apparatus.

Vacation is for the teacher the most critical division of the year. Professional success depends in no small degree upon the use that is made of the opportunities then offered for renewal of physical energy and moral enthusiasm. No advice is possible that will fit the needs of every-

[1] Woods Hutchinson, *Exercise and Health*, The Outing Company, 1911, p. 156. This is the most wholesome book ever written on the hygiene of exercise, replete with picturesque and sparkling wit and wisdom. Nothing that could here be written on the subject of exercise would take the place of this book, which is worthy of a favored place in every teacher's library.

one, but, generally speaking, a goodly fraction of the vacation should be spent in outdoor pursuits and a somewhat smaller portion in study, preferably of a not too strictly professional kind. The vacation is preëminently a time for striking a new balance in things mental and physical. The somewhat narrowing interests of the schoolroom should give place temporarily to other intellectual pursuits and to the vitalizing, humanizing influences of literature, history, art, and friendship. On the physical side, the well-spent summer vacation should rid the teacher's brain and muscles of the accumulated clinkers of a school-year, and if she belongs to the well-known variety *pedagogia anæmia* she should carry to her schoolroom in September at least a million more red corpuscles for each cubic centimeter of blood in her body than she could have boasted on the previous Commencement Day. Blood tests and other physical examinations are a recent and portentous addition to the methods of experimental pedagogy. Ignatieff[1] has demonstrated that the week-long examination nearly always effects a loss of body

[1] *Zt. f. Schulgesundheitspflege*, 1898, p. 244.

weight. Mosso and others have proved that prolonged application to mental work reduces the depth of respiration to an astonishing degree. Graziani and Helwig have beautifully demonstrated that excessive devotion to mental work both reduces the percentage of hæmoglobin and reinforces the "degenerative" processes in the red corpuscles.[1] Blood tests in the open-air schools show in a striking way the reverse phenomenon, i.e., the increase in hæmoglobin and number of blood corpuscles under the influence of open-air living, abundant exercise and diet, and shorter rations of mental work. There is no reason why a well-spent vacation should do less for the faded, wearied teacher than for the thirty-seven summer colony children studied by Dr. Borchmann, of Moscow. In this case the summer vacation produced for the boys a gain of 936,000 red corpuscles per cubic centimeter of blood and 6.1 per cent of hæmoglobin; for the girls a gain of 720,000 red corpuscles and 8.7 per cent of hæmoglobin.[2]

[1] *Zt. f. Schulgesundheitspflege*, 1907, p. 337, and 1911, p. 218.
[2] *Zt. f. Schulgesundheitspflege*, 1899, p. 320.

SUGGESTIONS FOR THE TEACHER

DIET

Constipation, nervousness, and anæmia are three formidable and interrelated ills generally consequent upon over-work, worry, and neglect of diet and exercise. They are a veritable curse of the profession, dragging innumerable teachers along the retrograde path to professional incapacity and premature superannuation. The teacher should know something about dietaries and the chemistry of digestion. She should make some study of her own idiosyncrasies of digestion and food preferences. She should black-list those articles of diet productive of costiveness. If possible, the deadly cold lunch, eaten in solemn silence, should be forsworn. Thanks to the ingenious and convenient thermos bottle and thermos lunch-basket the cold lunch is no longer a necessary evil. It will be a blessing for both the cause of hygiene and education when every school, in city and country alike, is provided with facilities for preparing and serving the noon meal to all who cannot conveniently go home for it.

THE HYGIENE OF THE VOICE

The pedagogical voice is expected to be anything but pleasant. When other professional symptoms fail to betray the identity of the teacher, the voice will usually suffice to do so. The pathological basis for the teacher voice has been revealed by the medical investigations reported by Yonge (23) and Milligan, two English physicians. The former examined one hundred women teachers of Manchester and discovered definite pathological conditions of the throat in seventy per cent of the entire number, mostly inflamed swellings of the vocal chords ("teachers' nodes"), chronic catarrh, etc. Thirty-one of the seventy had definite lesions of the vocal organs. Though we have not so named it, the "school throat" is no less common than "clergyman's sore throat." The teacher has five "voice days" per week, the clergyman, only one. During each of these days the voice is employed for several hours. The strain, at best, is a severe one; but if the room is much above standard size, if two or more classes recite at once in the same room, or if there are

other disturbances, then the strain becomes very trying, indeed. The teacher should guard her voice as something more than a mere instrument of communication. Her voice may make just the difference between success and failure. It has a distinct moral and also æsthetic value. There is the voice which irritates and provokes and another which inspires quiet and instills respect. The loud, rasping voice is the thief of nervous energy, the enemy of effective discipline, and totally unnecessary. Likewise, exaggerated or artificial modulation is both uneconomical and displeasing. Temperance is a virtue of speech that applies as much to quality as to substance.

In short, the teacher's voice is as important as her grammar. She is made painfully conscious of defects in the latter, but remains in blissful ignorance of the most disagreeable defects in the former. It would be well if normal-school students and teachers in service were graded by experts in respect to the quality of the voice and given whatever training might be needed to improve it. The teacher can save her voice much strain by learning how to use it; how to replace

the jerky enunciation by a tone of pure quality. It would be of mutual advantage, too, if the teacher would learn to do less of the talking and let the pupils do more. The teacher who knows something of the hygiene of her own voice will also be in position to help reduce the amount of speech defectiveness among school-children.[1]

SITTING *vs.* STANDING

Constant standing is another source of injury to the health of the woman teacher. The importance of this is so well understood that many of our states have made statutory provisions requiring owners of department stores and other industries to provide benches or chairs on which women employees may rest while not actually engaged in work. Excessive standing is still more injurious to the teacher, because she finds it more difficult to escape the unhygienic customs of feminine dress than do women employed in many of

[1] The number of school-children in the United States with seriously defective speech may be conservatively estimated at a half-million, one third of whom are stutterers. Ninety per cent of this is curable.

the industries. The high-heeled shoe is a positive menace, inducing well-defined spinal curvatures and displacement of the pelvic organs. Because the woman teacher must remain at her post of duty regardless of any periodic indisposition, she cannot too religiously observe the laws of personal hygiene peculiar to her sex.

VII

THE HYGIENE OF CHARACTER [1]

WHEN the "Psychology of Occupations" is written, its most interesting chapter will be that one which analyzes the back-strokes of the various pursuits upon the workers; for each occupation has its peculiar reactive influences. As it is frequently put, every individual bears upon himself the badge of his profession. Just as certain books on the "Pathology of Occupations" have endeavored to set forth the relation between each trade or profession and physical disease; how, for example, one of them breeds nervous disorders, another indigestion, another rheumatism, another arterial sclerosis, another hypertrophy of heart, and still others tuberculosis, so it will be the task of the "Psychology of Occupations" to gather analogous material for the mental side. It is as a

[1] The author is under obligations to the editors of *Scribner's Magazine* for permission to use certain material in chapter VII which had previously appeared in an article on "The Teacher Psychosis."

slight contribution to this end that the writer offers the following observations regarding certain types of mentality more or less peculiar to schoolteachers, — *the teacher psychosis.*

The analysis here offered is a purely tentative one, of necessity incomplete and possibly skewed at some points from the essential truth. Until the psychology of character, *ethology*, as John Stuart Mill christened it, has been given a more scientific basis than it now rests upon, any such analysis as that here attempted must inevitably reflect opinion rather than principles, and can only be justified by its suggestive value; not by any pretense to finality.

If some of the descriptive phrases herein employed seem a trifle strong, the reader is reminded that they are used in the delineation of a *type* of character and that they cannot be taken as applying with equal pertinence to the innumerable individuals who, taken together, compose the type. There is no single teacher psychosis, but many psychoses which vary in individual cases with the teacher's sex, age, length of service, temperament, grade of work (whether element-

ary, secondary, or college), and also with the particular professional *milieu*. Moreover, having drawn freely upon the expressions of many critics, the writer is hardly prepared to vouch for the literal truth of all the imputations here gathered together. It may readily be granted that some of these are unjust, some exaggerated, and that still others are but lingering traditions descended from that not very ancient time when teachers were composed mostly of slaves, cripples, or others *hors de combat*, so to speak, as regards the affairs of free and able-bodied men and women. It is believed, however, that some of the observations are worthy of the teacher's serious consideration.

ATROPHY OF THE SOCIAL INSTINCTS

Teachers tend to become bookish and unpractical, unable to bear their proper part in turning the wheels of social progress. Their energies are consumed within the four walls of the schoolroom. Their intercourse is with children, whose ring of social interest has hardly widened beyond the confines of the school playground or second

back-alley. The large majority of elementary teachers are bachelors and spinsters, and are for this reason poorly qualified to view things from the truly social point of view. The longer this individualistic life continues the more havoc it plays with the native social tendencies.

On the side of personality this is likely to show itself in an artificial demeanor. Instead of the open frankness, geniality, and poise of the business man, lawyer, or physician, the teacher is likely to be found unsocial, stilted, and didactic. Some teachers are too dogmatic to be agreeable companions; too didactic, too instructive, too prone to impart information to stand on a give-and-take footing with their friends. Confining their associations so exclusively to those in the same profession, teachers are always in danger of developing a certain provincialism of intellect and character.

Not infrequently teachers so lose touch with the needs of the social order that this in its progress washes past them altogether, leaving them stranded high and dry like fossils on the deserted shore-line of an ancient sea. As for taking any

active part in civic and political affairs, some teachers meet perfectly a recent characterization of college students—"as innocuous as a flock of sheep." Another writer has gone so far as to say that the originators of ideas for social betterment do not look to teachers for sympathy or even for understanding.

While few of us would admit the literal truth of these accusations, perhaps just as few would deny that our half-million school-teachers exert far less than their legitimate share of social influence, their superior education and intelligence considered. Too little of their energy is devoted to civic and social leadership; too much to the maintenance of the *status quo*. Many a teacher's conception of education seems to limit the function of the school to the business of handing over to a rising generation the storehouse of information which has been found more or less valuable for a previous generation. As a result, the school is too often like a chip that rises and falls on the waves of social evolution without either accelerating or impeding the movement thereof.

To the extent the malady is an actual one its nature suggests the obvious cure. The institution of public education is in position to make itself the most powerful of all social influences, and there is no excuse for that narrow professional training which is capable of inspiring in teachers no higher conception of their duty than to serve like cogs in a piece of machinery whose larger purposes they do not comprehend. To this end the normal-school course should be extended in length and appropriately enriched by the addition of broad courses in the sociological aspects of education. The teacher in service, also, should be encouraged to keep one foot in the living, throbbing world, militant for right in the civic affairs of the community. In so far as duties permit, the teacher should mingle with people of other occupations. As Dr. W. H. Burnham has said, "We tend to become mentally asphyxiated if we live too long amid our own exhalations even when these are of the highest spiritual quality."[1]

[1] Unpublished lecture, Clark University, 1905.

PERVERSION OF THE SOCIAL INSTINCTS

In addition to a general atrophy, the teacher's social instincts also tend to well-defined perversions. Our reference here is primarily to the male teacher, in whom such perversions are most common. Traditionally the male teacher is characterized by undue social timidity, obsequiousness, and lack of manly force. He is likely to be aggravatingly humble, meek in facing dangerous local situations, patronizing, apologetic, and effeminate; "a mite docile," as even the kind-hearted James calls him.

There is doubtless truth as well as exaggeration in the indictment as thus framed. By way of explanation it has been suggested that the profession attracts a disproportionate number of young men who are by nature somewhat negative socially. For the timid, those not quite certain of their powers, the school opens up a safe haven of refuge (39). It offers a sure if modest livelihood and the opportunity to live as one wishes, provided always the duties of the office are discharged faithfully and without fuss. The profes-

sion is too much shielded from the hot struggles of competition. Moreover, the necessity of thus working in harness, in a system where personal loyalty and obedience assume magnified importance, deters many bold, rough, positive, independent young men from entering the profession. Particularly is this true in a country like ours which offers so many other outlets for the *entrepreneur* spirit, the will to accomplish.

Still more serious is the charge often made, both from within and out of the profession, that those in administrative positions repress the individuality of teachers in the ranks. Grade teachers, it is said, obey the principals, the principals the superintendent, and the latter the public as represented in the school board. The self-respecting man finds it hard to adjust to "the system," a gigantic structure with foundations deeply laid in the crystallized rock of traditions. The more docile, dependent, obedient, and less assertive woman accepts the situation as a matter of course. Those in authority are undisputed lords, each in his own domain, and the road is clear for the development of the dictatorial, overbearing school

tyrant, whom we are to regard as the product of an all-pervading influence which is not easily withstood. The possession of such autocratic power is not noted for broadening the sympathies or deepening generosity. As Mr. McAndrew says (40) superintendents and principals have their own way in so many little things that they acquire an "unnatural appetite for victory." They cannot yield gracefully, even in unimportant matters. Criticism from without paralyzes them, but coming from within it only serves to draw the reins a little tighter. There are superintendents of schools who have been known to require all their teachers to sign a formal document expressly agreeing to submit without complaint to instantaneous dismissal at the pleasure of the superintendent.

Merely to condemn the school tyrant as brutal is not charitable, nor does it do justice to the facts. The latter is but the product of a condition. That his kind is not more numerous speaks well for the humanitarian character of those whom the profession attracts. In fact, within her own domain the classroom teacher herself succumbs

to the same subtle influence. Dealing only with inferior minds she acquires an exaggerated sense of her importance. The instinct of self-assertion is not less powerful than the instinct of self-abasement. Every individual harbors both; it depends upon personal environment which one is uppermost at any given moment.

THE DIDACTIC HABIT

Closely connected with the above is the danger of becoming dogmatic, exacting and meddlesome. In looking for the faults and mistakes of children, teachers tend to lose human sympathy and generosity. Who has not witnessed that sad but common form of discipline which consists in having children stand, sit, straighten, turn, fold arms, and move or speak only by signal? Who does not know the volley-like, rapid fire of commands which wound even the heart of the sympathetic onlooker? The teacher comes to look upon the pet regulations and rules of her creation as categorical imperatives immanent in the nature of the moral order. Some rules of the school are grounded on rational necessities exactly to

the extent that savage tabus are, which they so much resemble. Like the latter, the petty restrictions of the school starve the growth of individuality. In normal schools teachers are instructed that the chief aim of education is to teach children to inhibit, or as it is expressed in the latest *pedagguese* "to overlay primitive impulses with impulses of higher order." Within the school she develops into a Citizen Fixit, meddling with the coarsest touch among the most delicate tendrils of the child's mental and moral growth. One of the most difficult lessons for the teacher to learn is that it is an audacious thing to rush in to meddle with the conscience of another, even if that other is a little child; that in doing so there is danger of misreading the child's motives, misunderstanding him, insulting him. The traditional bull in the china shop cannot be more destructive than the over-conscientious, meddlesome, clumsy, and ignorant teacher in the rôle of *inhibitor of primitive impulses.*

The "teaching instinct" may be a valuable element in the teacher's equipment, but when it hypertrophies into a veritable "didactic habit,"

it should be repressed. Teachers need to learn that periods of lying fallow are no less essential for mental growth than their eternal volleys of instruction; that their besetting sin is teaching too much and leaving too little for growth; that education is an organic process and that the mind does not grow by agglutination; that the most responsive beings in the world to the *personal touch* are little children, with their veritable passions of imitation, loyalty, and hero-worship. Indeed, the prodding, vexatious teacher is less in place in the elementary school than in a Johns Hopkins or Harvard graduate seminar.

METHOD CULT AND PEDANTRY

Stanley Hall (35) characterizes method cult as "the most subtle form of pedagogical pathology." Verbalism, rules, definitions, preciseness, and accuracy of form tend to replace substance. Every slightly different way of doing a thing comes to be labeled with a name of its own. Pedagogical books and articles literally swarm with these methodological ghosts, so that it requires a discerning intelligence to distinguish

the little that is genuine from the much that is spurious.

The outcome of the method fetich is that in the process of instruction everything is analyzed to atoms; the juice of the subject-matter is squeezed out and only the indigestible fibre remains. What is meant is amply illustrated by the thousand and one rigid forms of grammatical parsing and sentence diagramming (as H. G. Wells puts it, "a ritual called parsing that must be seen to be believed"), or by the petty exactitude sometimes required in the formal statement of arithmetical solutions. The writer's advice was once asked by a California school-teacher on the following momentous question: In the first statement of the solution of a percentage problem involving profit or loss, which is correct: to say that "100 per cent equals the cost price," or that "cost price equals 100 per cent"?

Teachers are prone to overestimate the value of the traditional subject-matter of school instruction, much of which is obsolete fact, misapplied half-truth, or useless pedantry. Some of the stock illustrations in "rhetoric," curious, nut-cracking

problems of arithmetics, and naïve misinformation of current geographies have been traced back through many generations of texts, each of which had contributed its quantum of useless or incorrect material to the texts which followed. The shreds and patches of current school information the teacher hashes over again and again until she mistakes them for wisdom, until she can see for her pupils no salvation the road to which does not lie through familiarity with the chronological order of Washington's military maneuvers, or the names of the finer structures of the human body. In truth no small part of the school curriculum is conventional, of value only to those who learn it for the sake of teaching it to others.

A real difficulty of pedagogy lies in the fact that the school's activity is not purposive as far as any immediate end is concerned, but always anticipatory of some distant future. It deals with imagined situations, prepares for exigencies which may or may not be encountered. The teacher therefore must always feign, counterfeit, imitate the real and inherent. Her teaching is at the opposite pole from that which the master

of a trade gives day by day to his apprentice. The difficulty, however, is not one to be overcome either by an ultra-refinement of some theoretically ideal procedure or by the repudiation of method as such. The teacher needs more momentum. Her professional outlook is too little scientific. Only a thorough initiation into the positivistic data of child psychology and child hygiene, combined with first-hand acquaintance with the results of the promising young science of Experimental Pedagogy will suffice to rid the teacher of her solemn belief in method magic.

PREMATURE MENTAL DECAY

Montaigne has likened the teacher to a grindstone, dulling her own edges in the process of sharpening the wits of others. To the extent that this is true, two conditions, chiefly, are responsible: The teacher's work is too repetitive or mechanical, and it supplies opportunity for an interplay with inferior minds only. Intellectually the teacher tends to be dragged down to the A B C level where she lives and moves. Painfully evident sometimes is this dwarfing effect

of contact with little minds. Through overmuch repetition of the elementary and familiar, the mind loses incentive to push on. The teacher falls a victim to fixed modes of interpretation and of action which she is incapable of changing except on the greatest provocation. Extreme habituation also endangers many-sidedness of interest. The psychological law of relativity is here applicable. The teacher finds it hard to be spontaneous, fresh, and inspiring at the hundredth repetition. The result may be either dead routine or else hypocritical assumption of an enthusiasm which has long since expired. The mind can only live by pushing on to new ideas or to unceasing reëlaboration of the old. Unlike the artist, the lawyer, or the physician, the teacher is not always stimulated to this. Her conceptions lose fluidity by the mere fact of repetition.

A chapter might be written on the growth and decay of an idea in the individual mind. At its first inception an idea is big with meaning, surrounded by a halo of fringes, is an irradiating center of potential affinities for innumerable other ideas, words, and volitions. But by dint of

repetition this fringe of intimations is brushed away, as pebbles are smoothed by the flowing water. New categories are no longer possible. Novelty, as such, is beyond apprehension. The personality is "shut in," to use a term of modern psychopathology. Intellectual growth is at an end; firm, rigid lines settle in upon the soul — it is habit-bound.

The recipe for inducing this state of mental fixation is simple and sure: *the monotonous repetition of elementary activities under conditions of strain which prevent other lines of mental functioning*. The process is hastened when the routine activities of the intellect act in conjunction with school-bred fatigue. One of the earliest symptoms of protracted nervous overstrain is the elimination of interests which do not contribute directly to the day's work. In the case of the tired teacher one after another of these interests is lopped off till life is stripped to its barest essentials. The mind narrows, becomes mechanical, and loses its humanity.

An important antidote is to reserve certain hours each day for a vacation from professional

habits. This is recreation, which therefore should become the teacher's religion. It should involve play, the very essence of which is its creativeness and the relaxation from habitual routine, and it should be seasoned with constructive mental activity in some field of art, literature, science, etc. This will foster the attitude of the learner, without which early decay is certain. The daily recreation will need also to be reinforced by vacations spent in travel or in non-professional study. As already emphasized, the teacher would do well to make and keep a few intimate friends chosen directly from other professions or from even quite different walks of life.

Finally the teacher should cultivate the faculty of "doing the usual thing in the unusual way." The artist temperament should be her ideal, for the true artist abhors exact duplications and always endeavors to transvaluate all his experience. In every possible way variety should be mingled with the day's routine. The daily program could be upset topsy-turvy now and then to the benefit of both pupils and teacher. There is little danger of going too far, since everything else makes for

conformity. Within certain limits the teacher might be shifted from one grade or one department to another, or, where this is not feasible, a new position should be sought occasionally. To escape the danger of a premature mental arrest, every possible source of life and enthusiasm should be utilized.

THE LOSS OF ENTHUSIASM

By this is meant that state of gloomy dissatisfaction or flabby indifference which is so likely to supervene in the woman teacher of thirty-five or forty years who is beginning to realize that she must give up forever all aspirations of fulfilling the one destiny for which woman was created (30). Before the onset of this condition women are the ideal teachers of pre-adolescent children. They are sympathetic, gracious, vivacious, hopeful. Many are endowed with a temperament which enables them to retain these ideal qualities into ripe old age. In some teachers, however, enthusiasm gradually wanes. If the woman so situated continues to teach she is likely to develop the traits of fussy exactness, querulous dissatisfac-

tion, morbid suspicion and harshness. Physical invalidity may be added.

Fortunately the loss of enthusiasm is not inevitable, as is proved by the happy, helpful lives of countless elderly women teachers. The pursuit of philanthropic interests, in school or out, is an admirable substitute for the activities intended by the maternal instinct. There is also the genuine, though vicarious, satisfaction afforded by daily contact with the children of other mothers. The exceptional teacher in whom the ugly spite of nature will not be conciliated, who after every effort to attain philosophical consolation finds herself weary, crabbed, and embittered, should not hesitate, at whatever sacrifice to herself, to seek a calling where the influence of her unhappy life will not shed its blight upon the tender souls of children.

VIII

THE RESPONSIBILITY OF THE NORMAL SCHOOL

THE key to the situation is in the normal schools, which in at least three respects are in position to contribute more than they do to the hygienic status of the profession: (1) They could do a great deal to improve the physical condition of their students while in training. (2) They could offer and prescribe thorough courses in the fundamentals of personal hygiene, including both the mental and physical aspects, so that teachers will know how to preserve their health in spite of the unhygienic environment. (3) The normal schools are under the moral obligation to exercise a rigid selective function over those who present themselves as candidates for the profession.

OVERPRESSURE IN THE NORMAL SCHOOL

As regards the first of these points, there is reason to believe that the intense strain of the

normal course directly contributes to the human wreckage which litters the profession. Hardly anyone will deny that normal-school students are as a rule sadly overworked, but the overpressure is frequently justified on the plea of necessity. Dr. W. H. Burnham (7) asked the following questions of 569 normal-school students of the New England and Middle West States: —

"1st. What conditions in the normal school or its environment and in the methods and courses of instruction have you found beneficial or injurious to your health?"

"2d. What changes in your physical condition, such as increase or loss of weight, improvement or loss of health, special illness, or the like, have you noticed since you entered the normal school?"

"3d. Give a full account of your day's program, — amount of time devoted to study, exercise, recreation, sleep, etc."

Of these 569 students, nearly 20 per cent reported that they had suffered impairment of health during their training course, while only 25.5 per cent report improvement. This is espe-

cially significant when we remember that the students questioned were young women who had just arrived at an age when the functions of sex have ordinarily become established and normal. Under hygienic conditions young women at this age ought to show almost universal improvement. It appears, however, that a large proportion of our normal-school graduates, probably as many as one fourth, enter a strenuous profession for the successful pursuit of which they are already physically unfit. Of the same students, 61 per cent mentioned conditions in the normal school which they considered detrimental to health. The injurious conditions most frequently designated related to over-pressure, to the distraction incident to carrying too many studies, imperfect heating and ventilation of classrooms, and the climbing of stairs. As the most common causes of health improvement, exercises in physical training and the regularity of school life received most mention. The students met an average of more than six class appointments daily, worked on an average about nine hours, exercised fifty-five minutes, and slept about 7.89 hours. It

would be difficult to find a competent person willing to defend such a regimen for girls just emerging from the storm and stress of adolescence.

In a study made by the writer of the causes of irregular attendance in a California State Normal School, the health factor was much in evidence. To secure accurate information on this point a health questionnaire was submitted to about three hundred students. To remove all motive for concealment of ill health those answering were requested not to attach their signatures. Data were collected as follows: —

(1) "*How many colds have you contracted during the past school year?*" (This investigation was made in June, near the close of the year.) Results: 8 per cent had contracted six or more colds; 32 per cent, three to five; 47 per cent, one or two; and 13 per cent, none at all.

(2) "*Do you have headaches frequently, occasionally, or not at all?*" Result: 53 per cent have them frequently, 20 per cent, occasionally, and 27 per cent are entirely free from them.

(3) "*Are you constipated habitually, occasion-*

ally, or not at all?" Result: 15.6 per cent suffer habitually from this serious impairment of health, 41.5 per cent, occasionally, and about 45 per cent, not at all.

Two other questions asked for information as to the regularity of the functions of menstruation and the need of monthly rest periods; 39 per cent report themselves as not "normal" or "regular" in this respect; 56 per cent testify to the need of one or more days of rest per month from this cause; 9 per cent say four days, 8 per cent, three days, 20 per cent, two days, and 19 per cent, one day. However, only a few more than half of those who believe themselves to need such rest ever take it. The leading reasons given for this neglect are that they cannot afford the time for rest, that they would get behind in their work, etc. It is well to emphasize that these statistics were obtained by questionnaire and that a searching medical examination would certainly have revealed a yet greater extent of ill health. No account whatever was taken of visual and auditory defects, or of throat, lung, and heart affections.

An inventory of the possible factors influencing the health of students in this school revealed the following points: *Ill-ventilation:* About a third of the classrooms have no mechanical system of ventilation, and the ventilation of several which do is by no means satisfactory. The ventilating system is only operated in connection with the heating plant and the latter is not in use more than one third of the school-hours of the year. *Temperature:* The automatic controls sometimes fail to work and a difference of ten degrees in the temperature of two rooms, or of the same room in different periods of the day is not at all uncommon. *Humidity:* No adequate equipment for supplying the requisite amount of moisture to the heated air. *Dust:* Dry sweeping on that part of the floor occupied by seats and desks. The *common cup:* In constant use. *Illumination:* In some parts of the building badly deficient in amount and objectionable in other respects. *Hill climbing and stairs:* The school is situated on a hill about sixty feet above the level of the nearest street-car line. The building itself is three stories high, all the floors being

about equally used. We can only conjecture the extent of injury this has produced in the quarter-century the school has been used. *Distance from school:* It was found that only one sixth of the students were independent of street cars. The remaining five sixths rode to school daily in street cars, about one third from suburban quarters.[1]

Some of these factors are more or less peculiar to the school in question. There are others, however, which are probably common to nearly all normal schools in this country. One of these is the nervous strain incident to carrying in mind the details of so many courses of instruction, lesson plans for practice teaching, etc. The entire day is strenuously occupied. The courses themselves may not be over-difficult, but the necessity of attending daily to so many separate tasks leads to distraction and fatigue. It is not at all uncommon for students in normal schools to carry a program of twenty-six to thirty lessons

[1] It is a pleasure to add that through the untiring efforts of the school's President and Board of Trustees, the above-described plant will very soon be replaced by one of the most modern and expensive normal-school buildings in the United States.

per week. The school above described seldom permitted more than twenty-four, including the daily chorus practice. However, to reduce the nervous strain still further, the intermissions between classes were lengthened, as a result of the inquiry, from five to ten minutes. Students and teachers alike testified to the decided relief thus afforded.

In most European countries the pressure upon normal training students is still more severe. In France the weekly program includes from 30 to 35 recitations; in Italy, 30 to 33; in Germany, 32 to 35; in Austria, 28 to 30; and in Switzerland, 33 to 40 (6). An investigation of the health of the students in a Swiss seminary for female teachers indicated that only about one third were in good health. The remainder suffered chiefly from anæmia, nervousness, heart disturbances, etc.

In England the worst conditions of all are found. In this case the overpressure is connected with the pupil-teacher system, a method of professional training which has been in vogue in England since 1846. According to this system, pro-

mising pupils are chosen at the age of fourteen or fifteen years (formerly as early as thirteen), and from this time on permitted to teach part time as apprentices, at the same time continuing their academic studies. The following table shows typical weekly programs for the four years during which the training lasts: —

Year	Hours of recitation	Hours of home work	Hours of instruction	Total
I	17½	11	12½	41
II	17½	13¼	12½	43¼
III.....	10¼	11¼	25	46½
IV.....	10¼	13¼	25	48½

Though the pupil-teacher's schedule has been greatly improved in recent years by the limitation of study to the forenoon period and teaching to the afternoon, the lot of the English pedagogical apprentice is yet a very trying one.

Reverting to the plea of necessity, so often heard as an excuse for overpressure in normal schools, it is legitimate to ask whether it would not be wiser to lengthen the course a little instead of defying the laws of nature in the effort to crowd three years of work into two, or four into three. Teaching can never rise to the dignity of a profession with us until our professional

training becomes less fragmentary and superficial. Three years beyond high-school graduation should be the very lowest limit for certification. Four years would be far better. To be sure, such an extensive preparation will not be feasible or even possible until salaries are increased in proportion. But this is not a valid objection to our proposal. Money spent in improving the quality and training of its teachers is the most profitable investment society ever makes. We have lately seen the lengthening of medical courses from two years above the common school to three or four years beyond college graduation. Nor does cheapness atone for incompetency in the business of training minds any more than in the curing of bodies.

SELECTING THE CANDIDATES ON THE BASIS OF HEALTH

In the second place, normal schools could contribute to the hygiene of the profession and at the same time to the protection of the public if they would conscientiously undertake a selection in the admission of their students. Before enter-

ing upon the training course all candidates should be required to undergo a *thorough physical examination made by experts employed by the school itself.* The usual formal requirement of normal schools that students present on matriculation a certificate of good health "from some reputable physician" is utterly fruitless. The writer knows from his own experience that students with tuberculosis, extreme neurasthenia, grave organic defects, or even epilepsy, have no difficulty (be it said to the shame of the medical profession) in fulfilling this requirement. There is no valid reason why this examination should not be just as searching as that given for life insurance. It should include especially examination for diseases of the lungs, heart, nervous system, and digestive system. The eye and ear examination should be made by experts rather than by the school's physician or director of physical training. Pertinent facts should be secured relating to candidates, — previous illnesses, hereditary antecedents, etc. The physically unfit should be rejected, including those of worst heredity, those with indications of tuberculosis, diabetes mellitus, Graves's Dis-

ease, or other progressive or serious organic troubles. Candidates suffering from ailments such as anæmia, chorea, stuttering, neurasthenia, heart weakness, etc., should be rejected until recovery is assured. The examination should be repeated each year after entrance and again when the candidate enters upon regular employment.

The welfare of children is so deeply involved in this matter that it is no longer charity to make of the profession a haven for cripples, neurasthenics, and others of delicate constitution. Examinations like those mentioned above are already given in the training schools of France and England, and in a few cities of the United States. In England (22) the Board of Education requires a physical examination at the beginning of the course, a certificate of good health at the beginning of each year during the course, and a thorough examination at the end of the course. In case physical defects are discovered, the physician is required to state fully the nature and extent of the impairment and whether he regards the symptoms as transitory or lasting. The French schools have been safeguarded by regulations

similar to the above since the ministerial requirement of 1897. The number rejected in France varies from one half per cent to twelve per cent in the different training schools. The majority of rejections are for anæmia, dry pleurisy, weak constitution, or suspicions of tuberculosis (5). A large proportion of those put on probation and later admitted break down before the completion of the course. In general, the more careful the examination the larger the number rejected and the smaller the number placed on probation. This means that probation as a rule is only the postponement of an evil which it is hoped to prevent. It is seen from the range of percentages of rejections that some schools are content with a decidedly lower standard than others. Where the rejections and probations together run as low as one or two per cent, the examination may be looked upon with suspicion. It is said that New York City rejects ordinarily about three per cent.

Besides this initial medical examination, another no less thorough should be given upon the completion of the normal-school course. Here the responsibility of the normal-school ends, and

the obligation of further protection to the health of the teacher rests upon the officers of school administration. Every argument for the medical inspection of school-children applies equally to the teachers, who have the same right that their pupils have to timely warning against the insidious inroads of disease.

It goes without saying that the value of medical inspection, either for teachers in training or in service, depends wholly upon the conscientiousness with which it is administered. To protect the children of the state from teachers who are below a reasonable standard of physical or moral fitness imposes upon the normal-school authorities a duty which at times may be irksome and unpleasant, but one which they are morally obligated to perform, unmoved by sentiments of sympathy, friendship, or fear. Suitable state legislation facilitates the discharge of this obligation.

HYGIENIC INSTRUCTION IN THE NORMAL SCHOOL

In the third place, the normal school is at fault in not giving its students the semblance of an adequate introduction to personal and educa-

tional hygiene. A recent report on *The Teaching and Practice of Hygiene in the Public Normal Schools of the United States,*[1] based on rather detailed questionnaire returns from eighty-four of the better class of schools, establishes the following significant facts:—

(1) That one half of the eighty-four schools offer either no hygiene at all, or else none aside from that given incidentally in connection with physiology. Nine schools give neither hygiene nor physiology, and those giving the latter devote so little time to it (usually one third or one half of a year) that very little can be accomplished in hygiene.

(2) That courses in personal hygiene, school hygiene, sanitation, prophylaxis, clinical psychology, etc., are only slowly finding a place in the normal-school course of study, and that mental hygiene is receiving scarcely any attention.

(3) That comparatively little is being done with the problem of sex hygiene in the way of direct

[1] A study made under the writer's direction by Arthur Heche and published in the *Journal of Educational Psychology*, 1911, pp. 429–39.

instruction, and that the normal schools are not making the best of their opportunity to train teachers who can use nature study and biology as an approach to this subject.

(4) That in the practice of hygiene nearly two thirds of the schools confess themselves guilty of harboring conditions that should not be allowed to exist, chiefly inadequate ventilation, improper lighting, unsatisfactory boarding and rooming places, and overpressure.

(5) That twenty-five per cent of the schools do not have a gymnasium in the charge of a physical director and that athletics and recreation do not receive the attention they should.

(6) That but few of our normal schools are giving special training to teachers in the observation of physical defectiveness or in the application of mental and physical tests.

(7) That only one of the eighty-four schools attempts to train special teachers of hygiene for the public schools.

(8) That, on the whole, sufficient science is offered (though not necessarily required) to serve as a reasonably good foundation for the various

forms of hygiene instruction, and that a good proportion of the teachers of physiology and hygiene in these schools have university or college degrees and are probably capable of doing better work than their present allotment of time permits.

In order that teachers may be placed in a position to protect themselves from those risks to health and happiness which are sure to be encountered in the practice of their calling, as well as also for the sake of fitting them to act as the health guardians of their pupils, the subject of School Hygiene should be raised from its present neglect and given the right of way in the normal-school curriculum. Instruction in the subject should escape its present absurd limitation to the traditional (and sometimes obsolete) laws of heating, lighting, and ventilation, and ground itself upon the newer and infinitely broader conceptions of its bearing and scope. It should include, among others, such fundamental topics as the hygiene of physical and mental growth, the physiology of diet and of exercise, the hygiene of the throat, lungs, and voice, men-

tal hygiene (including the psychology of learning, economic alternations of work, rest and sleep), the hygiene of instruction, the relation of the school to the great world scourges like tuberculosis, venereal disease, malaria, hookworm disease, etc. In the light of the modern advances in preventive medicine, together with the widespread interest in the social aspects of hygiene and the recognition of the importance of athletics, play, and the physical side generally in the scheme of education, the present comparative neglect of educational hygiene in the normal schools becomes an intolerable anachronism.

Our normal schools, indeed, appear to be all but unconscious of the fact that they are living in the midst of one of the greatest educational reforms the world has ever seen, — a movement which is indispensable to both the physical and moral regeneration of the nation; namely, the application of scientific knowledge to the business of conserving and extending the efficiency of the psychophysical organism. It is otherwise impossible to account for the fact that teachers have paid so little heed to the health conditions of their

pupils, that they are among the largest consumers of patent medicines (12), and that so many of them accept the wildest vagaries of Christian Science. That the normal schools are in the rear of the educational procession as regards educational hygiene becomes evident when one compares their practice with the interest displayed in the subject by city superintendents, principals, women's clubs, mother's leagues, civic organizations, and school hygiene associations. At its 1911 meeting the Child Hygiene section of the National Education Association adopted by unanimous vote the following resolution: —

"*Resolved*, That the Department of Child Study of the National Education Association formally memorialize the normal schools throughout the country to extend and modernize their teaching of the subject of child hygiene and related topics."

VOCATIONAL GUIDANCE IN THE NORMAL SCHOOL

However it may be in theory, in actual practice society exercises little active choice in the selec-

tion of its teachers other than the merely negative function of rejection on the basis of certain standards of academic scholarship. Any young woman who has the intellect to attain a certain memoriter mastery of the stock subjects of the high school and normal school curriculum may make her way to the teacher's chair regardless of the most flagrant personal unfitness. She may be illiterate, careless, ugly-tempered, cynical, void of sympathy for children or respect for her profession, but if she is sufficiently determined and not downright feeble-minded, she may be graduated from almost any public normal school in the United States. Not that her kind will be looked upon with favor in the normal school. During her course of training she will be criticized, scolded, penalized, sometimes required to repeat subjects, or put on probation — but in all except the rarest cases she will finally be brevetted with the school's stamp of approval. Persistence is the main virtue necessary to win. The assumption of everyone concerned seems to be that because the public normal school *is* public it must maintain itself an open highway on which anyone may

walk untrammeled into the teaching profession. Once graduated, the candidate does not stand in need of any special recommendation from her *alma mater* relative to her personal fitness. The DIPLOMA answers her purpose, because it is accepted in good faith as a signed and sealed guarantee from a responsible party that she has been sufficiently tried out and has been found worthy of the public's confidence.

It may be objected to this criticism that the function of rejection rests with the employers of teachers rather than with the normal school. This argument, however, involves the absurd application to education of the *caveat emptor* principle[1] which is fast becoming obsolete even in the marts of commerce. The public is no more in the position to protect itself against the undesirable teacher than against adulterated foods and medicines. Society has created the normal school in order to secure a protection which it cannot accomplish itself, and rests under the delusion that the insurance it has contracted for is genuine. The normal school has been even more timid

[1] Let the buyer beware.

about blackballing the morally unfit than in excluding the consumptive or neurasthenic.

There is quite another class of normal-school students who also stand in need of vocational advice; students who may be possessed of excellent moral qualities and superior intelligence, but who, for one reason or another, ought not to become teachers. One of these considerations — health—has already received our attention. In season and out, the idea should be combated that the teaching profession is one adapted to the strength of actual or hereditarily potential weaklings. Other qualities of merit, just as critical, are the capacity to understand and inspire the child mind, the possession of a "teaching instinct," the personal bearing, professional attitude, pleasing voice, the absence of unsightly physical deformities, etc.

Before it can intelligently exercise the functions of vocational guidance it will be necessary for the normal school to devote a great deal of serious study to the *psychology of the teacher*. It does, of course, make a certain effort, though of a crudely empirical nature, to determine the lines

of special strength and weakness of its students. For example, the supervisor of practice teaching grades her students on such distinct points as "discipline," "neatness," "preparation," "ability to impart knowledge," etc. This is a very good method as far as it goes, but it needs to be scientifically refined and systematically employed in order to furnish data of any material value.

Instead of pursuing some purely theoretical and mechanical scheme for grading the teacher's qualifications, the normal school might undertake to ascertain the relations which actually exist between various personal, social, intellectual, volitional, and emotional traits on the one hand and teaching success on the other. Our present naïve phrenological attitude on the subject needs to be replaced by a positive body of fact bearing on the *psychology of teaching success*. To secure the necessary data will require that we abandon the artificial schematizations, the rough-and-ready rubrics, in common use, and institute in their stead a searching psychological analysis to determine the essential nature of all those attri-

butes and conditions which determine the teacher's success.

One obvious and feasible method would be for the normal school to maintain an efficient "follow-up" service among its graduates, in order to ascertain for each the degree of success or failure and the reasons therefor. Then by the application of well-known mathematical formulæ, coefficients of correlation can be established between "success" and any particular quality of merit or group of such qualities. The limits of this book do not permit an exposition of the method or an appreciation of its results, but it may be said that until we have many studies of the type referred to at the foot of this page,[1] it will be impossible to assert with any degree of confidence the relative value as elements in the teacher's success of the various qualities of merit customarily taken into account.

The aim of such study is to distinguish fundamental lines of cleavage in teacher personality

[1] Ruediger and Strayer, "The Qualities of Merit in Teachers," *Jour. Ed. Psychol.*, May, 1910; and Arthur Clifton Boyce, "The Qualities of Merit in Secondary Teachers," *Jour. Ed. Psychol.*, March, 1912.

from the superficial striations which first strike the attention. We do not yet know what veins of merit are most worth working. It is impossible, on the basis of our present knowledge, to forecast these cleavages, since they are the resultants of many variational factors both in the individual and in the profession itself. However, merely to indicate in a general way the significance of such study the following rubrics are offered for whatever they may be worth :—

1. *Fitting the Teacher to the Grade of Instruction.* Obviously, very different capacities are demanded in the kindergarten, primary grades, grammar school, high school, college and university. *There can be no single ideal teacher personality.* Just what qualities and combinations of qualities are most suitable for these various lines remains to be determined, but it is certain that there are many high-school teachers who ought to be in the grades, grade teachers who ought to be in the high school, kindergartners who would do better work in the grammar school, and so on.

2. *Fitting the Teacher to the Subject,* together

with the problem of ascertaining permissible limits of specialization for teachers in different grades of work. Many of our special teachers have *drifted* into their departments. Students of unusual scientific ability are permitted, or even encouraged, to become humdrum teachers of literature or philosophy. Everything goes by happy or unhappy accident. Our universities have poor professors who would make admirable instructors in the high school, while the high school is filled with teachers who have no interest in anything but the scholarly aspects of their subjects and who therefore belong elsewhere.

3. *Adapting the Teacher to the Sex of the Pupils.* Few teachers succeed equally with girls and boys. Some fail absolutely with girls, but succeed with boys, and *vice versa.* We do not know definitely enough the psychological basis of such idiosyncrasies.

4. *Selecting Teachers for the Special Schools.* Some teachers are only spurred to their best efforts by coming face to face with the special problems in schools for feeble-minded, incorrigibles, super-normals, etc. Others are balked by

any schoolroom problem not explicable in terms of common experience. There is no more crying need than that of securing *special teachers of special fitness.*

5. *The Spirit of Research versus the Love of Teaching.* These abilities may, but do not always, exist together. The possessor of the mind of critical scholarly instincts, wedded to knowledge for its own sake, may be the veriest Gradgrind in his elementary instruction.

6. *The Teacher's Attention Type.* A few teachers belong to the extreme "concentrative" type; a few to the extreme "distributive" type. The former cannot make headway against the constant eddies of distraction present in high school or grade instruction, but may succeed in a university where lectures are prepared in quiet seclusion and delivered without interruption.

7. *Emotional Wealth and Emotional Poverty.* Undoubtedly the teacher *teaches with her emotions as much as with her intellect.* But no one has made any serious study of the emotional factors that enter into instruction, and how they affect it. We do know that an intelligent teacher

who is also a good disciplinarian and commendably conscientious in preparation for her daily work may as a teacher prove mechanical and uninspiring to the last degree, — just as there are excellent people who cannot raise flowers or coax a neglected orange tree into condition.

8. *Leadership and Persuasive Power.* This differs not only in degree but also in kind. The time is ripe for an empirical study of the qualities that make for leadership among teachers of various grades and conditions.

9. *The Teacher's Practical Philosophy.* Her attitude toward civic and social institutions; toward friends, inferiors, superiors, etc.; toward children as children; toward material goods, and the like. It will be admitted that all these items are important, but how, when, why, and in what degree they are important we do not know.

It is seen, therefore, that vocational guidance for the teacher has a positive as well as a negative value. Besides rejecting the unfit, it endeavors to direct each candidate into that type and grade of teaching where her strongest qualities

may be most effective and where her weakest may least imperil her success. The task of discovering the special merits of the teacher and placing them where they may work most efficiently is one of the cardinal problems in the hygiene of the occupation.

A by no means negligible product of any well-directed effort toward vocational guidance in the normal school will be the cultivation in the young teacher of a spirit of self-study and self-criticism, which throughout her career should point the way to self-improvement, to increased success, and to a wholesome spiritual attitude toward the inevitable vexations of the profession.

BIBLIOGRAPHY

I. THE TEACHER'S PHYSICAL HEALTH

1. W. H. ALLEN: Civics and Health, chapter XV, pp. 152–58.

2. ARLIDGE: Mortality, Hygiene, and Diseases of Occupations, 1894, pp. 111–14.

3. T. M. BALLIET: Rept. to the Board of Education of Springfield, Mass., 1896, pp. 23–27.

4. DR. BAUR: Die Hygiene geistiger Arbeit der Schüler u. Lehrer. Inter. Arch. Schulhygiene, 1911, pp. 52–92.

5. DR. BRETON: Rapport sur les aptitudes physiques des candidats a l'enseignement. Rept. III. Congress S. H., 1910, pp. 343–50.

6. BURGERSTEIN U. NETOLITZKY: Handbuch f. Schulhygiene, second edition, pp. 718–36. Bibliography complete to 1901.

7. DR. W. H. BURNHAM: A Contribution to the Hygiene of Teaching. Ped. Sem., 1904, pp. 488–97.

8. DR. LOUIS GOURICHON: Sur la Rareté de la tuberculose chez les membres du corps enseignant, etc. II. Congress S. H., 1907, pp. 683–86.

9. DR. E. B. HOAG: The Health Index of Children, chapter XI, pp. 136–52.

10. H. L. P. HULBERT: The Care of the Teacher's Voice. II. Congress S. H., 1907, pp. 862–66.

11. DR. J. N. HURTY: The Teacher's Health. Educator Journal, 1910, pp. 12–13.

12. T. S. LOWDEN: The Teacher's Health. Education, vol. 29, pp. 30 ff, 76 ff, and 153 ff.

13. MARIE VON MANACEÏNE AND LUDWIG WAGNER: Die Geistige Überbürdung in der Modernen Kultur. Leipzig (1905) pp. 192–97.

14. DR. WM. OLDRIGHT: The Schoolroom as a factor in Tuberculosis. II. Congress S. H., 1907, pp. 686–92.

15. OLIVER: Diseases of Occupation, 1908, pp. 363–64.

16. DR. SCHMID-MONNARD: Die Uberbürdung der Lehrer an höheren Lehranstalten. Zeits. f. Schulges., 1899, pp. 701–06.

17. W. S. SMALL: The Hygiene of Teaching. Proc. American School Hygiene Assoc., vol. 1, pp. 142–52.

18. DR. G. STÉENHOFF: The State of Health of Teachers in the Infant and Elementary Schools of Sweden. Inter. Arch. School Hygiene, 1911, pp. 564–66.

19. DR. CATHERINE VAN TUSSENBROEK: Hygiene des Lehrkörpers. Rept. I. Congress S. H., 1904, vol. IV, pp. 323–62.

20. WALTER TODD: Some Preventable Diseases Incidental to the Profession of Teaching in the Ele-

mentary Schools. Rept. I. Congress S. H., 1907, vol. III, pp. 853 ff.

21. DR. R. WICHMANN: Zur Statistik der nervösität bei Lehrern. Zt. f. Schulges., 1903, pp. 626, 696, 776; 1904, pp. 304, 543, 713.

22. R. T. WILLIAMSON, M.D.: The Medical Examination of School-Teachers. Chapter XVIII in Kelynack's Medical Inspection of Schools, 1910; same article in the III. Congress S. H., 1910, pp. 351–58.

23. E. S. YONGE: The Prevention of Throat Affections among Female Elementary Teachers in Manchester. Brit. Med. J., 1897, p. 807.

24. REPORT OF U. S. COMMISSIONER OF EDUCATION FOR 1898–99, vol. II, pp. 1488–89.

25. ZEITSCH F. SCHULGES., 1912, pp. 32–36: Résumé of School Hygiene Conference at Berlin devoted to the Hygiene of the Teacher.

26. INTER. ARCH. OF SCHOOL HYGIENE, 1911, pp. 619–21: Review of Recent (Armenian) Literature on the Hygiene of the Teaching Body.

II. THE TEACHER'S MENTAL HEALTH AND THE HYGIENE OF CHARACTER

27. J. ADAMS: The Dullness of Schoolmasters. Psych. Foundations, 1911, pp. 350–67.

28. ARTHUR CHRISTOPHER BENSON: The Personality of the Teacher. Ed. Rev., 1909, pp. 217–30.

29. W. F. BOOK: The High School Teacher from the Pupil's Point of View. Ped. Sem., 1905, pp. 239–88.

30. F. D. BURK: The Withered Heart of Our Schools. Ed. Rev., Dec., 1907.

31. JAS. MCKEEN CATTELL: The School and the Family. Pop. Sci. Mo., Jan., 1909.

32. MACCUNN: The Making of Character, chapter VI.

33. RALPH WALDO EMERSON: Education. Houghton Mifflin Co., 1909.

34. WARNER FITE: The Case of the College Professor. Pop. Sci. Mo., 1911, pp. 273–82.

35. G. S. HALL: Certain Degenerative Tendencies among Teachers. Ped. Sem. vol. XII, pp. 454–63.

36. EDWIN HOLT HUGHES: The Reactions of the Teaching Profession. The Educator Journal, 1906, pp. 223–30.

37. WILLIAM DEWITT HYDE: The Teacher's Philosophy in and out of School. Houghton Mifflin Co., 1910.

38. CHARLES JUDD: Genetic Psychology for Teachers, pp. 64–68.

39. HENRY R. LINVILLE: The Public School Teacher in a Democracy. Pop. Sci. Mo., 1908, pp. 413–22.

40. WM. MCANDREW: When the Schoolman Fails. Ed. Rev., June, 1909.

41. MARGARET MCMILLAN: School Overwork as shown by its Effects on Teachers. II. Congress S. H., 1907, pp. 866–67.

42. GEORGE H. PALMER: The Ideal Teacher. Houghton Mifflin Co., 1910.

43. D. E. PHILLIP: The Teaching Instinct. Ped. Sem., vol. VI, pp. 188–245.

44. PAUL RADESTOCK: Habit and its Importance in Education. (Trans. by Caspari.)

45. GRANT SHOWERMAN: With the Professor, 1910.

46. RIBERA TARRAGO: The Limitations of Pedagogy. Education, 1908, pp. 235–50.

47. LEWIS M. TERMAN: The Teacher Psychosis. Scribner's Mag., Nov., 1908, pp. 505–08 (published anonymously).

48. H. G. WELLS: Mankind in the Making, *passim.*

49. E. S. : Celibate Education Today. Pop. Sci. Mo., 1908, pp. 423–28.

50. M. ZERGIEBEL: Zur Psychologie des Lehrers. Zt. f. Päd. Psych., 1911, pp. 471–83.

51. ANONYMOUS: Confessions of a Successful Teacher. World's Work, Nov., 1909.

LIST OF FIFTEEN BEST BOOKS ON PERSONAL AND MENTAL HYGIENE, SPECIALLY SELECTED FOR TEACHERS AND STUDENTS

1. The Care of the Body

1. FRANCIS CAVANAUGH: The Care of the Body. New York, 1907: Dutton & Co. 292 pages; price, $2.50.

2. LUTHER H. GULICK: The Efficient Life. New York, 1910: Doubleday, Page & Co., 195 pages; price, $1.20.

3. WOODS HUTCHINSON: Exercise and Health. New York, 1911: Outing Pub. Co., 156 pages; price, $.70.

4. WOODS HUTCHINSON: Preventable Diseases. Boston, 1911: Houghton Mifflin Co., 442 pages; price, $1.50.

5. WALTER A. PYLE: A Manual of Personal Hygiene. Philadelphia, 1910: W. B. Saunders Co. Fourth edition, 472 pages; price, $1.50.

2. Nervous and Mental Hygiene

6. T. S. CLOUSTON: The Hygiene of Mind. New York, 1909: E. P. Dutton & Co., Fifth edition, 308 pages; price, $1.85.

7. PAUL DUBOIS: Self-Control and How to Secure It. New York, 1909: Funk & Wagnalls Co., 337 pages; price, $1.50.

8. LUTHER H. GULICK: Mind and Work. 1909. 201 pages; price, $1.20.

9. HENRY CHURCHILL KING: Rational Living. New York, 1905: The Macmillan Co., 271 pages; price, $1.25.

10. A. MOSSO: Fatigue. New York, 1906: G. P. Putnam's Sons, 334 pages; price, $1.50.

11. MAX OFFNER: Mental Fatigue. Baltimore, 1911: Warwick and York, 133 pages; price, $1.25.

12. G. E. PARTRIDGE: The Nervous Life. New York, 1911: Sturgis & Walton Co., 216 pages; price, $1.00.

13. GUSTAV POLLAK: The Hygiene of the Soul. New York, 1910: Dodd, Mead & Co., 209 pages, price, $1.20.

14. MORTON PRINCE, BORIS SIDIS, AND OTHERS: Psychotherapeutics. Boston, 1910: I. C. Badger, 204 pages; price, $1.50.

15. C. W. SALEEBY: Worry; The Disease of the Age. New York, 1907: F. A. Stokes Co., 300 pages; price, $1.35.

OUTLINE

THE PROBLEM

MORTALITY RATE AND PHYSICAL MORBIDITY

TUBERCULOSIS AND THE TEACHER

OUTLINE

THE TEACHER AS NEURASTHENIC

THE MARGIN OF SAFETY IN THE EXPENDITURE OF ENERGY

HEALTH SUGGESTIONS FOR THE TEACHER

OUTLINE

THE HYGIENE OF CHARACTER

THE RESPONSIBILITY OF THE NORMAL SCHOOL

OUTLINE

The Riverside Press
CAMBRIDGE . MASSACHUSETTS
U . S . A